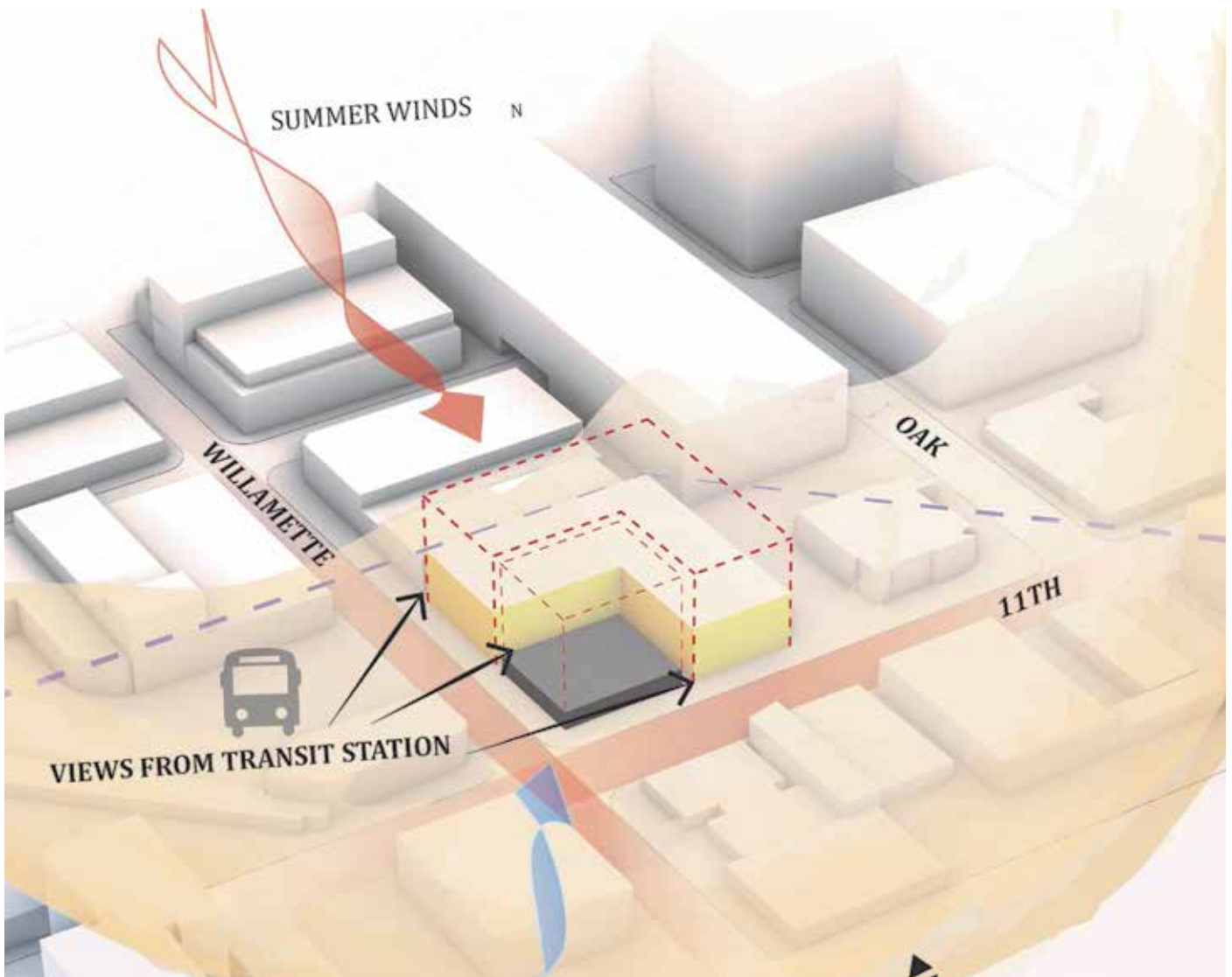


2020

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ARCH 683 Studio Report



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Isabel Rivera, Instructor, Architecture

James Tice, Professor, Architecture

Scott Clarke, Architect, PIVOT Architecture

Jacky Grey, Architect, PIVOT Architecture

Tim Hilton, Designer

Joseph Moore, Architect, GMA Architects

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01.

About SCYP

The Sustainable City Year Program (SCYP) is a year-long partnership between SCI and a partner in Oregon, in which students and faculty in courses from across the university collaborate with a public entity on sustainability and livability projects. SCYP faculty and students work in collaboration with staff from the partner agency through a variety of studio projects and service-learning courses to provide students with real-world projects to investigate. Students bring energy, enthusiasm, and innovative approaches to difficult, persistent problems. SCYP's primary value derives from collaborations that result in on-the-ground impact and expanded conversations for a community ready to transition to a more sustainable and livable future.

**About SCI**

The Sustainable Cities Institute (SCI) is an applied think tank focusing on sustainability and cities through applied research, teaching, and community partnerships. We work across disciplines that match the complexity of cities to address sustainability challenges, from regional planning to building design and from enhancing engagement of diverse communities to understanding the impacts on municipal budgets from disruptive technologies and many issues in between.

SCI focuses on sustainability-based research and teaching opportunities through two primary efforts:

Our Sustainable City Year Program (SCYP), a massively scaled university-community partnership program that matches the resources of the University with one Oregon community each year to help advance that community's sustainability goals; and Our

Urbanism Next Center, which focuses on how autonomous vehicles, e-commerce, and the sharing economy will impact the form and function of cities.

In all cases, we share our expertise and experiences with scholars, policymakers, community leaders, and project partners. We further extend our impact via an annual Expert-in-Residence Program, SCI China visiting scholars program, study abroad course on redesigning cities for people on bicycle, and through our co-leadership of the Educational Partnerships for Innovation in Communities Network (EPIC-N), which is transferring SCYP to universities and communities across the globe. Our work connects student passion, faculty experience, and community needs to produce innovative, tangible solution for the creation of a sustainable society.

SCI Directors and Staff

Marc Schlossberg, SCI Co-Director, and Professor of Planning, Public Policy, and Management, University of Oregon

Nico Larco, SCI Co-Director, and Professor of Architecture, University of Oregon

Megan Banks, SCY Program Director, University of Oregon

About Lane Transit District

LTD provides more than 10 million trips per year on its buses and EmX Bus Rapid Transit line in Lane County, Oregon. Encompassing the Eugene-Springfield metro area, LTD is a special district of the state of Oregon and led by a seven-member board of directors appointed by Oregon's Governor. LTD also operates RideSource, a paratransit service for people with disabilities, and numerous transportation options programs to promote sustainable travel county wide, and Point2Point, an initiative that provides community members with the necessary information and resources to assist them in identifying opportunities to drive less by discovering transportation choices that meet their individual lifestyles.

02.

COURSE
PARTICIPANTS

This report represents original student work and recommendations prepared by students in the University of Oregon's Sustainable City Year Program for the City of Eugene and Lane Transit District. Text and images contained in this report may not be used without permission from the University of Oregon.

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Kyhetica Lattin
Katherine Marple
Will Ogburn
Jocelyn Reynolds
Courtney Sigloh
Alex Tapia-Vargas
Kyle Tasik
Sean Thurston

EXECUTIVE

SUMMARY

Students planned and designed a new downtown “Enoteca,” Italian for a local and regional agricultural library, in Downtown Eugene, Oregon. The Enoteca is a space to educate the public about southern Willamette Valley wine production. In addition to the Enoteca, the program includes a ballroom and a restaurant providing farm-to-table cuisine. In addition to the program, students had the freedom to incorporate any other use they believed would enhance the city of Eugene lifestyle and needs. The location, on Willamette Street, would help enhance the LTD’s Eugene Station environment and expand an active part of Downtown Eugene.

The city of Eugene and LTD envision the site ideally including a housing component to increase housing density in Downtown Eugene. Currently, downtown is an “eight to five” business district; increased housing could help improve activity after business hours.

Sustainable design solutions were proposed, beginning with:

- a) Setting a budget and a program.
- b) Establishing a rule for the design solutions to include the AIA Cote Ten Measures.
- c) Create a project schedule.

A budget is an architect’s road map. The measures are the soul of the project. The schedule is the “road map + soul = profit.”

INTRODUCTION

This report is divided into nine sections that include research about the site, climate data, history, and students' design solutions. Student designs focus on "green" strategies, incorporating the American Institute of Architects Committee of the Environment (COTE) ten Measures, listed on the following page.

Students were introduced to Eugene through research and presentations on the following topics: Eugene's History, Eugene's Architecture Form and City Organization, Eugene's Site Topography and Code, and Eugene's Climate. This report includes these findings and how the students incorporated them in their various designs and recommendations.



MEASURE 1

Design for Integration



MEASURE 2

Design for Community



MEASURE 3

Design for Ecology



MEASURE 4

Design for Water



MEASURE 5

Design for Economy



MEASURE 6

Design for Energy



MEASURE 7

Design for Wellness



MEASURE 8

Design for Resources



MEASURE 9

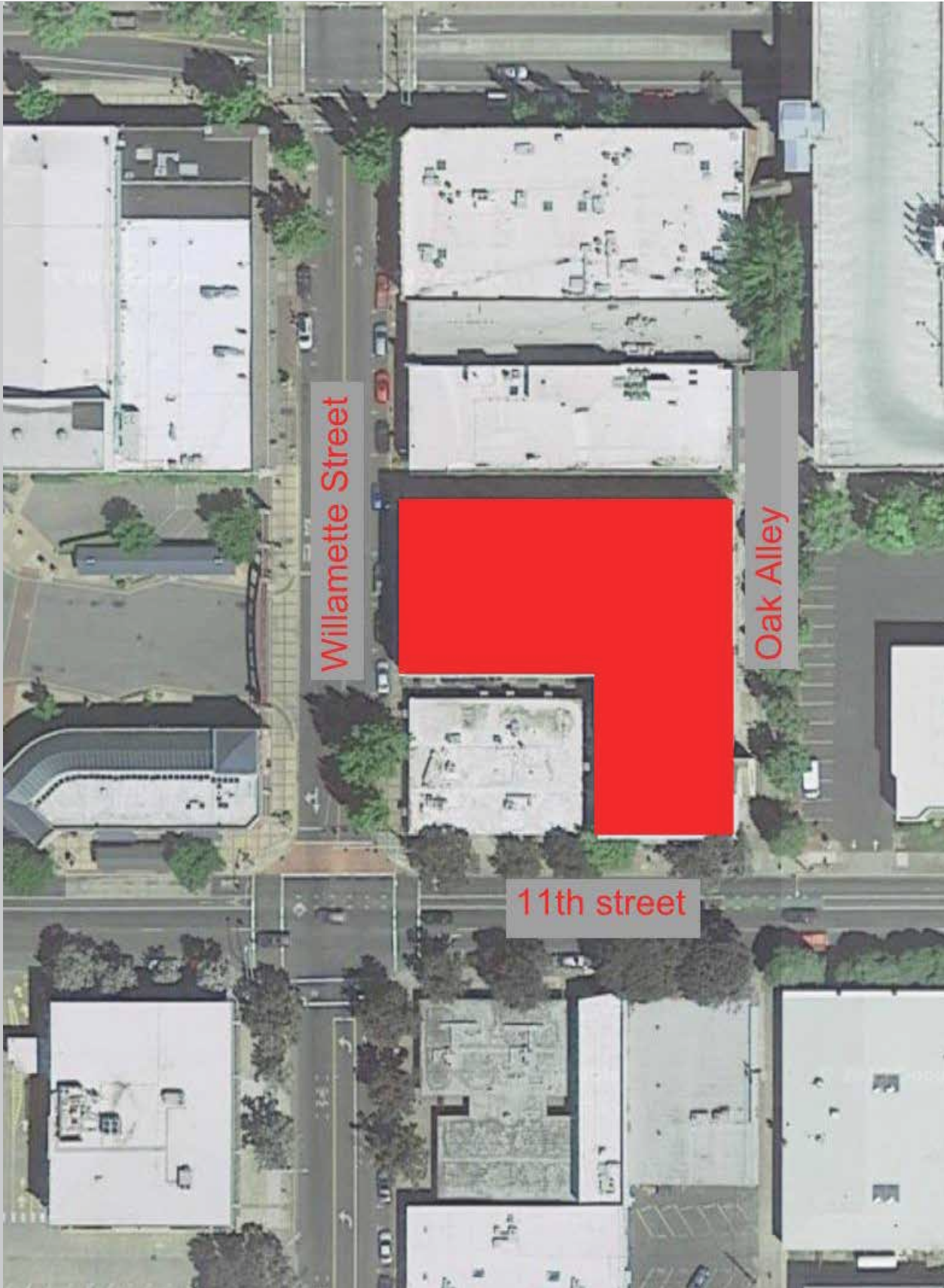
Design for Change



MEASURE 10

Design for Discovery

03.



SITE

The site is located at Willamette Street and West 11th Avenue in Downtown Eugene. Since the early 1900's, Willamette Street has been Eugene's main business street. In 1910, the street was paved and 6.2 miles of road were added across the city. Electric lighting came in 1912 and the first water line was added in 1914. The city built concrete sidewalks in 1915.

A pair of streets, 11th Avenue and 13th Avenue, are considered minor arterials while Willamette Street is considered a neighborhood collector.



-  MAJOR ARTERIAL
 MINOR ARTERIAL
 MAJOR COLLECTOR
 NEIGHBORHOOD COLLECTOR
 LOCAL STREET

NEIGHBORHOOD HISTORY

By the turn of the 21st century, more ornate buildings, such as the Montgomery Ward Building, were replaced by simpler façades. The scale and volume of the buildings frequently remained the same.

CHANGES IN THE URBAN FORM



View of Willamette Street from Skinner's Butte

Top Right - 1910

Middle Left - 1950

Bottom Right - 2018



Lane County Historical Museum



NEIGHBORHOOD CHANGES

Before the 1870s, timber-frame dominated the building industry. By the 1930s, taller buildings started to appear in downtown. Willamette Street buildings remained smaller scale, most at 30' to 35' in height. Additionally, most of the buildings on Willamette Street are brick.

CHANGES IN WILLAMETTE STREET



1910
Electric street car
Timber-framed false-front buildings & Brick buildings
Horse & buggy



1950
Personal cars / No electric street car
Bustling Main Street
Paved street
Big storefront signage



Present
Personal modern cars / Traffic lights
Entrance to Transit Hub
Trees in the street-scape
Less human-scaled store fronts

Changes in the Urban Form

CHANGES IN BUILDING FORMS AND TYPES



Pre - 1870's
Timber Framed False-Front
Commercial Structures



1930's
"Tall" Buildings Emerge
5 to 8 Story Buildings
Multi-Level Commercial Block



1960's
Car-centric Buildings Types Emerge
Drive-throughs, Parking lots



1900's
Ornate, Multi-storied
Brick Buildings
(fire-resistant)



1950's
Big Boom of Residential Growth
First Apartment Buildings



1970's
Demolition of Older, Historic
Buildings to Prepare for Modern Era

HISTORIC BUILDINGS ON WILLAMETTE



3. US POST OFFICE Stripped Classical (Art Deco) - 1937

This Stripped Classical, Art Deco style building was designed by government architect Gilbert Stanley Underwood and built 1937-39. Underwood is known for designing other prominent federal buildings, such as the Seattle Federal Courthouse and the Los Angeles Federal Building. Several murals can be found at either end of the lobby- they are the work of an internationally renowned Oregon artist, Carl Morris.



7. MCDONALD THEATRE Classical Greek/Roman (Mediterranean) - 1925

Built in 1925, the McDonald Theatre is the sole architecturally intact example of a movie palace remaining in Eugene. Of the four original movie houses in town, the McDonald was the largest with a seating capacity of 1,400. Designed by Lee Thomas, a Portland architect, the stage was made to accommodate live theatre and motion picture productions. The McDonald Theatre represented the largest endeavor of the McDonald-Schaefer's Company. The space is now a performing arts theater as well as a music venue.



8. SCHAEFERS BUILDING Modernistic (Art Deco) - 1929

This building was constructed in 1929, the single example of a modernistic style applied to a commercial building. The design of the building was the product of Truman Phillips, a recent graduate of the University of Oregon's School of Architecture. The Schaefer's brothers were important to the development of the local downtown business community. The building is now a Senior and Disability Services center.

TRANSPORTATION CHANGES

CHANGES IN URBAN TRANSPORTATION

1907 & 1910

Electric Street Car begins operating
& passes directly beside site on Willamette



TRANSIT TOMORROW

LTD knows the importance of a healthy transit system. LTD is taking steps to improve ridership in Eugene by decreasing wait times, expanding carrying capacity, and planning for the future. Their main downtown station is across the street from the site redesigned by students.

ROUTE FREQUENCY

15 MINUTES 30 MINUTES



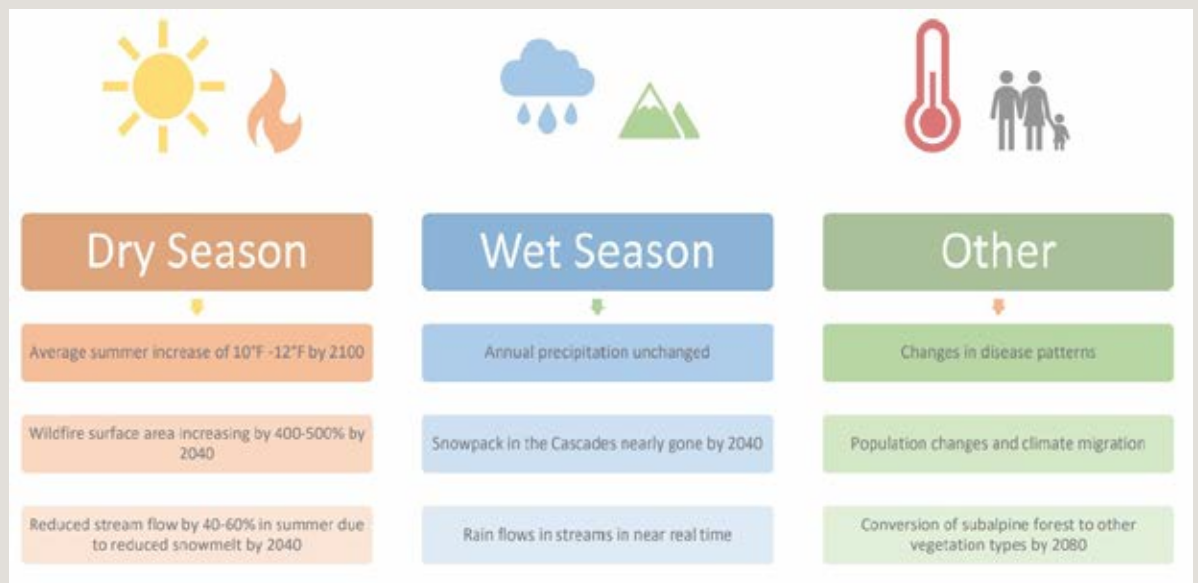
Site Aerial View

LTD Downtown Station

EUGENE

CLIMATE

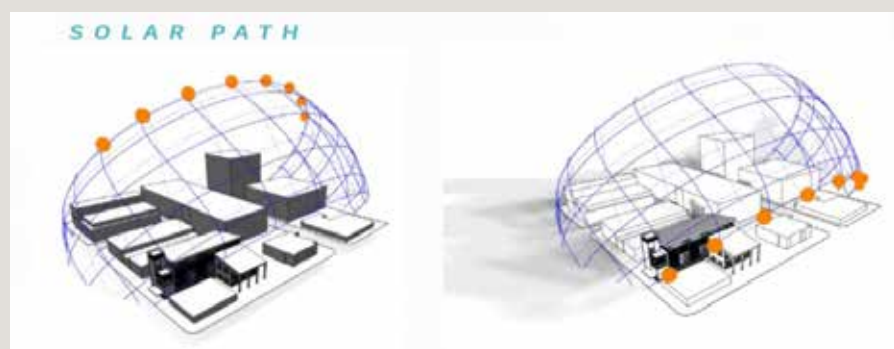
HOW WILL EUGENE'S CLIMATE CHANGE?



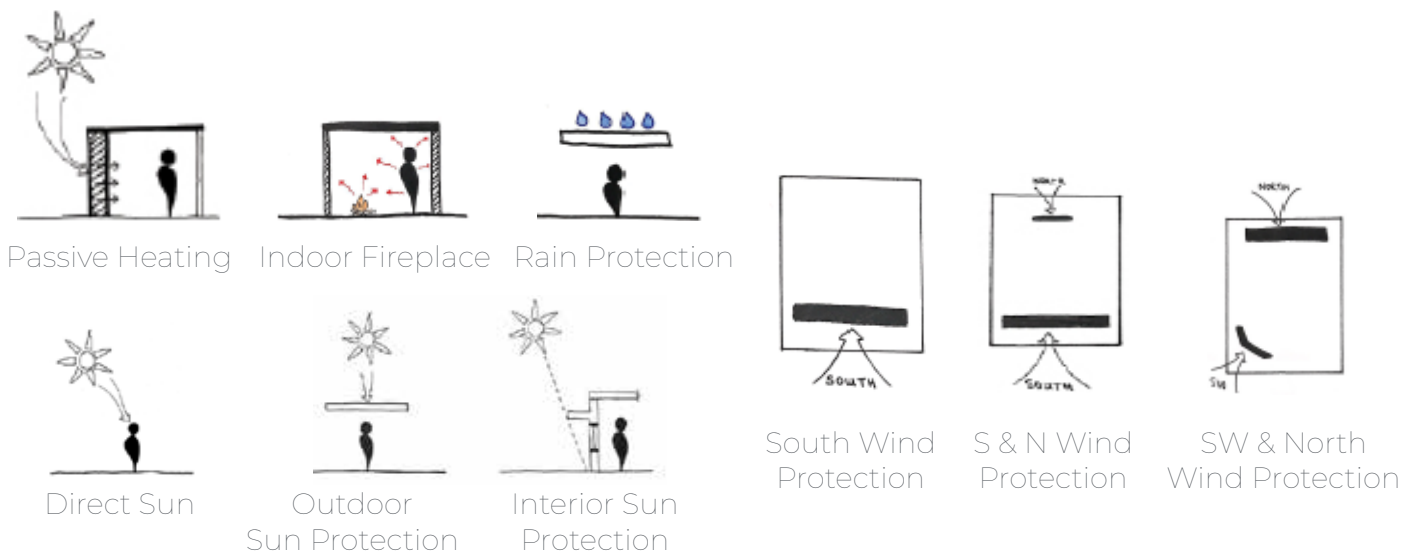
CLIMATE ACTION PLAN 2.0

Changing Climate in Eugene

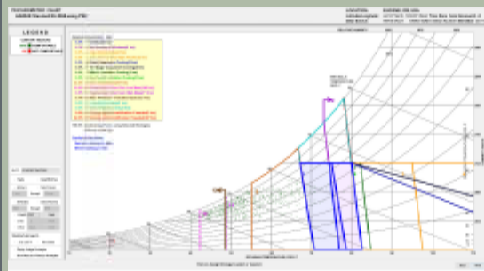
Eugene's Climate Action Plan discusses the potential changes of Eugene's climate in temperature, snow levels, drought, and wildfires. As designers, students remained aware of these changes and encourage green strategies for LTD through their designs.



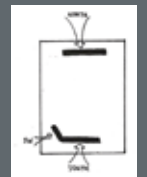
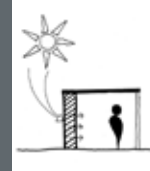
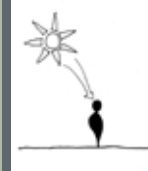
For climate analysis, the students used ASHRAE Psychometric Charts and usclimatedata.com. These analyses on climate data accompanied diagrams that explain the various building form needs to meet human comfort.



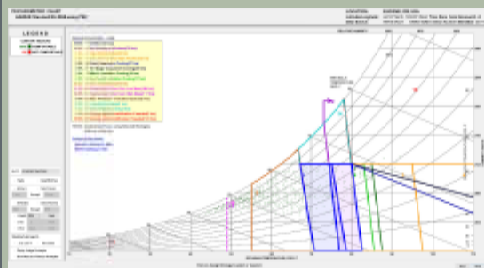
MAY



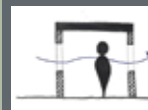
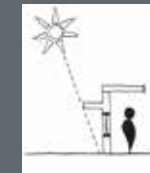
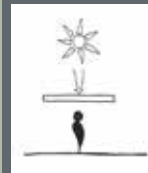
Average Temperature:
 Low: 43.8 F
 High: 67 F
 Average Rainfall:
 Rainfall Days: 11.7 days
 Amount: 2.7"
 Average Daylight:
 Daylight Hours: 15 hrs
 Sunshine Hours: 9 hrs
 Relative Humidity:
 60%
 Wind:
 25mph Southwestern



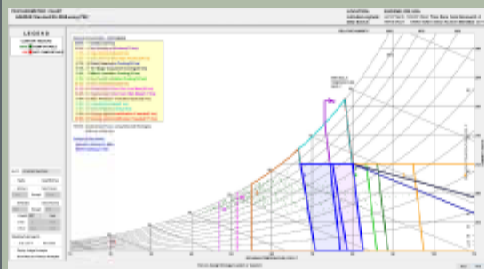
JUNE



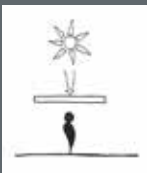
Average Temperature:
 Low: 47.9 F
 High: 73.2 F
 Average Rainfall:
 Rainfall Days: 7.9 days
 Amount: 1.5"
 Average Daylight:
 Daylight Hours: 15 hrs
 Sunshine Hours: 11 hrs
 Relative Humidity:
 56%
 Wind:
 20mph Western Wind



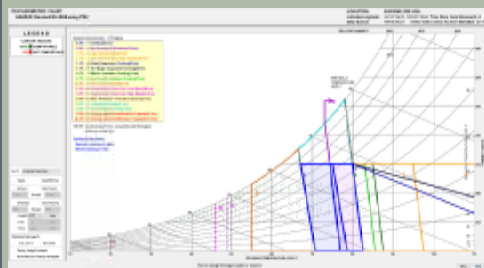
SEPTEMBER



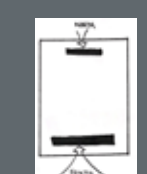
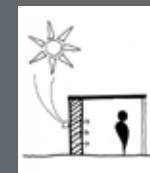
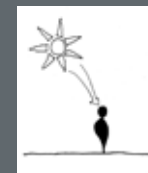
Average Temperature:
 Low: 47.3 F
 High: 76.9 F
 Average Rainfall:
 Rainfall Days: 5.4 days
 Amount: 1.3"
 Average Daylight:
 Daylight Hours: 12 hrs
 Sunshine Hours: 9 hrs
 Relative Humidity:
 50%
 Wind:
 20mph Northern Wind



OCTOBER



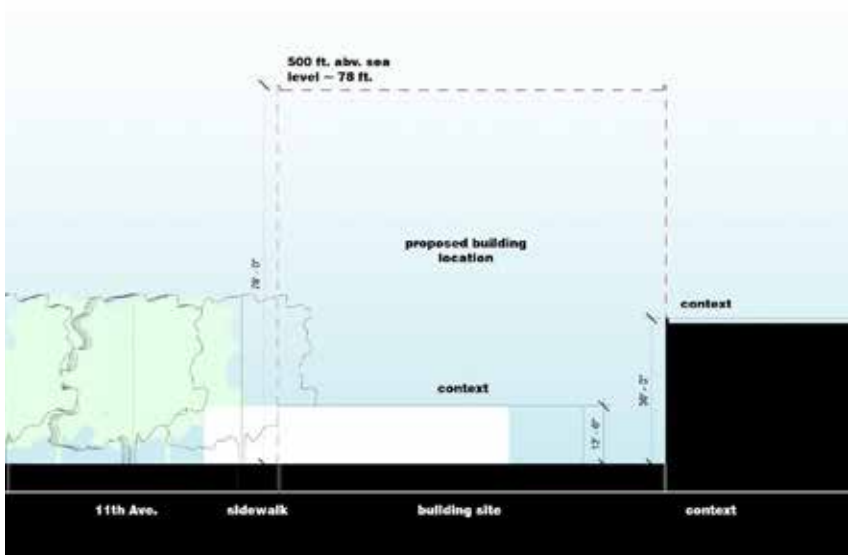
Average Temperature:
 Low: 64.2 F
 High: 41.5 F
 Average Rainfall:
 Rainfall Days: 11.4 days
 Amount: 3.3"
 Average Daylight:
 Daylight Hours: 11 hrs
 Sunshine Hours: 6 hrs
 Relative Humidity:
 49%
 Wind:
 20mph Northern Wind



WILLAMETTE STREET AS A FRONT DOOR

04.

Willamette Street serves as the front door to many businesses, past and present. The street contains wide lanes for cars and bikes, wide sidewalks, and space for parked cars. Wide sidewalks make it a more pedestrian-friendly street than West 11th Avenue. Therefore, students recommend orienting the main entrance of the new building towards Willamette Street. LTD's main station is across the street. Hundreds of thousands of riders travel through the hub each year, making this site a very visible location.



This diagram illustrates the maximum allowable height in this district.

STUDENT SOLUTIONS FOR THE FRONT DOOR

The following images illustrate the students' creative designs for the building facade on Willamette Street. The site is framed by LTD's downtown station, therefore students paid special attention to its composition and character. Students hoped to inspire Eugene residents with designs that are worthy additions to the neighborhood.



Will Ogburn Design



David Deussen Design



Jocelyn Reynolds
Design



Kyle Tasik Design



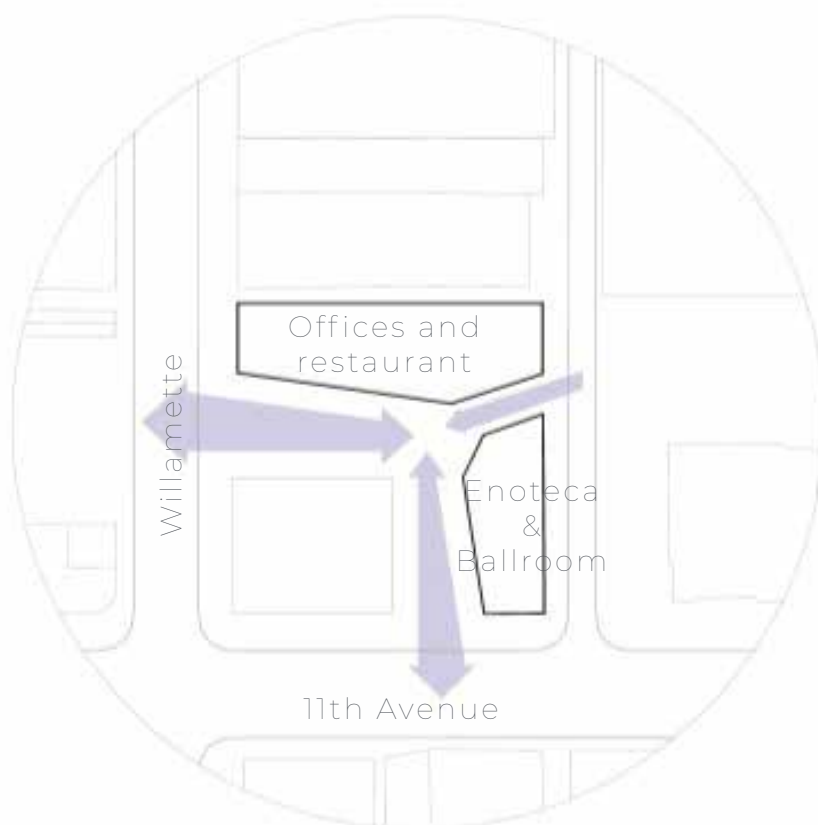
Alex Tapia Design

STUDENT SOLUTIONS FOR

MIXED-USE PROGRAMS

Mixed-use can create community partnerships and vibrant neighborhoods by offering a variety of services to residents within the same block. Mixed-use developments may include apartments, offices, coffee shops, retail, restaurants, and event spaces. The site is easily accessible with parking along Willamette Street, bike lanes on 10th and 11th Avenues, and transit access across the street. Students considered these transportation assets when creating their designs. The following student designs incorporated class objectives to create a space for an enoteca, a restaurant, and a ballroom.

David Deussen Design

**3. FUNNELING**

Creates an open gesture towards Eugene station.

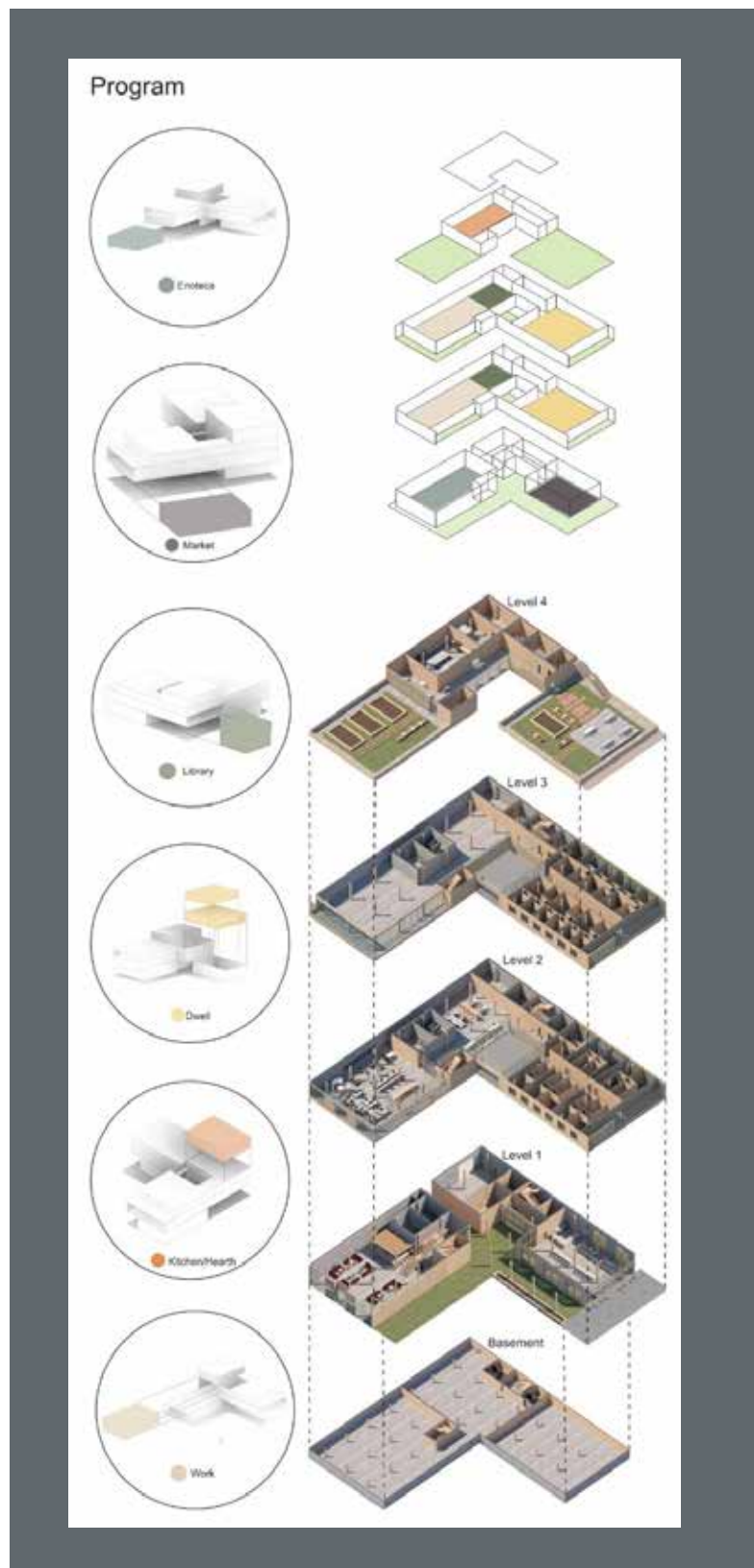
This student created a site that users can enter via three main points: Willamette Street, 11th Avenue, and Oak Alley. A central plaza is nestled between the three entrances and is the perfect spot to enjoy a drink or meal without vehicle or noise pollution.



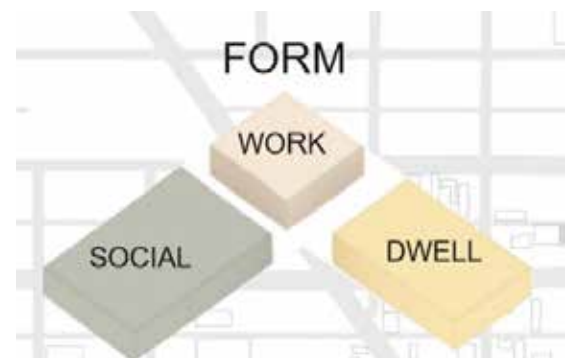
Katherine Marple Design

This student planned a block that incorporates green space in downtown Eugene, creating a park-like setting where residents and visitors can relax.

STUDENT SOLUTIONS FOR MIXED-USE SOLUTIONS



Vayle Khalaf Design



This student planned her program using the existing building structure. She designed social gathering spaces, work spaces, residential units, and outdoor spaces. The image above depicts the main view at street level on Willamette Street. The image below shows work spaces on second floor facing Willamette.



GREEN

STRATEGIES

Students also incorporated sustainable elements into their designs. Students utilized the AIA COTE 2020 Student Competition standards as their main performance measures for their designs.

These ten measures are briefly highlighted in this section. Student boards depict the full extent of their design decision and solutions.



M1

Integration



M2

Community



M3

Ecology



M4

Water



M5

Economy



M6

Energy



M7

Wellness



M8

Resources



M9

Change



M10

Discovery

MEASURE 1

DESIGN FOR
INTEGRATION

Student designs incorporated buildings into the existing built and natural environment. Integrated designs promote sustainability and create a more attractive building.

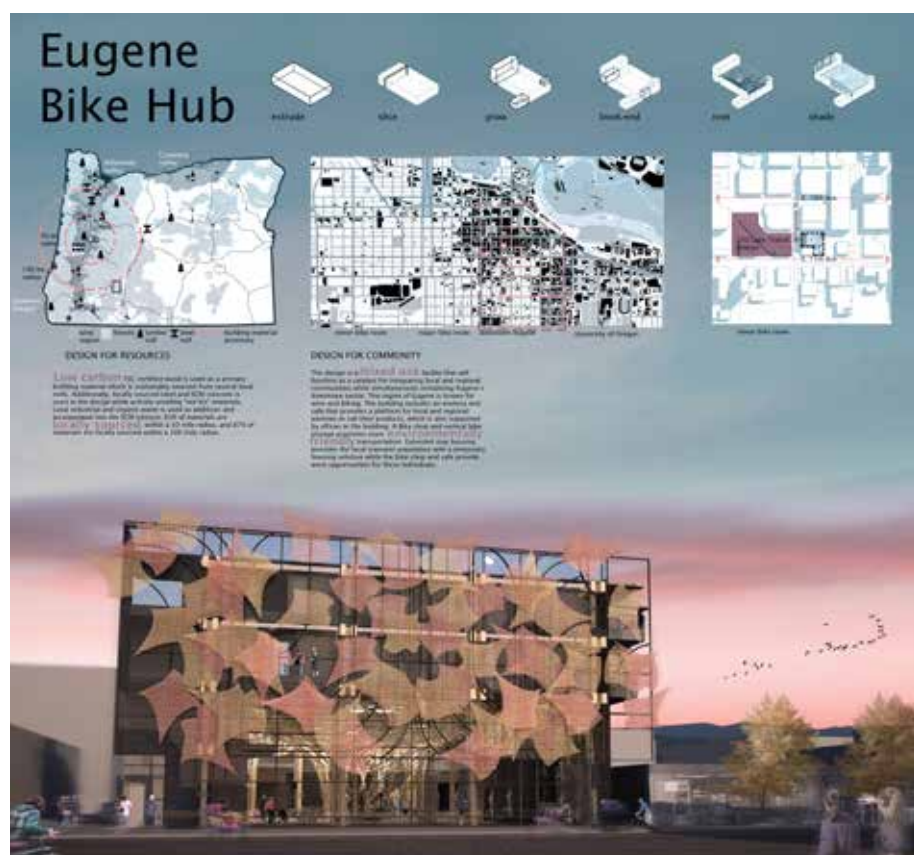


This student's design incorporates seven sustainability strategies: solar panels, thermal mass, rain water collection, solar shading, vegetative roof, cross ventilation, and daylight.

MEASURE 2

DESIGN FOR COMMUNITY

Students included design aspects that contributed to community wellness. These included aspects that improved walkability, human-scaled design, as well as aspects to address equity. Students also sought to reduce emissions by incorporating sustainable transportation modes into their designs. LTD's station across the street helped students better incorporate sustainable transportation.



Will Osburn community solution and Words

DESIGN FOR COMMUNITY

The design is a **mixed use** facility that will function as a catalyst for integrating local and regional communities while simultaneously revitalizing Eugene's downtown sector. The region of Eugene is known for wine and biking. The building includes an enoteca and cafe that provides a platform for local and regional wineries to sell their products, which is also supported by offices in the building. A Bike shop and vertical bike storage promotes more **environmentally friendly** transportation. Extended stay housing provides the local transient population with a temporary housing solution while the bike shop and cafe provide work opportunities for these individuals.

MEASURE 3

DESIGN FOR ECOLOGY

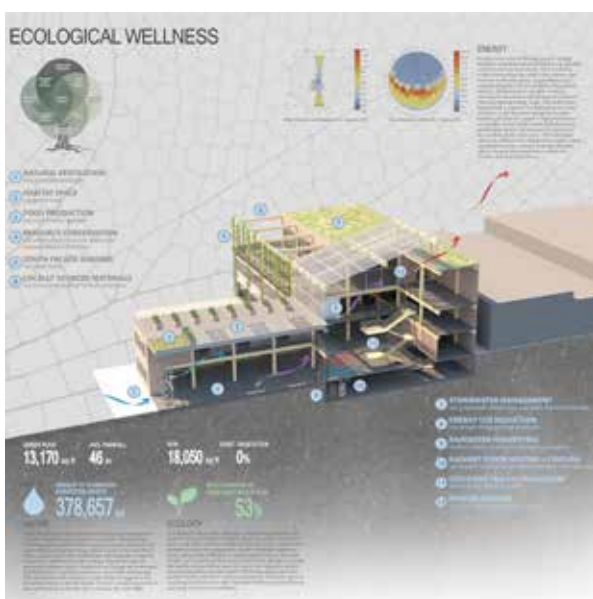
Students designed buildings that benefit the natural ecosystem and habitat.

Designs included rainwater harvesting and vegetation into the building design to promote integration with the surrounding ecosystem.



Native plants, a rainwater collection system, and on-site composting technology combine to create an innovative living machine. The living machine takes harvested rainwater and channeled grey water from the Enoteca and filters it through a series of constructed ecosystems, composed of vegetation and microorganisms, to improve water quality and create on-site habitats. The garden beds of the living machine are designed with subterranean composting pods that use worms and microbes to break down food waste while simultaneously providing nutrients to the water-purifying plants above. The system closes the loop for water on-site and composting generated locally and from regional wineries.

Courtney Sigloh Design for Ecology and words

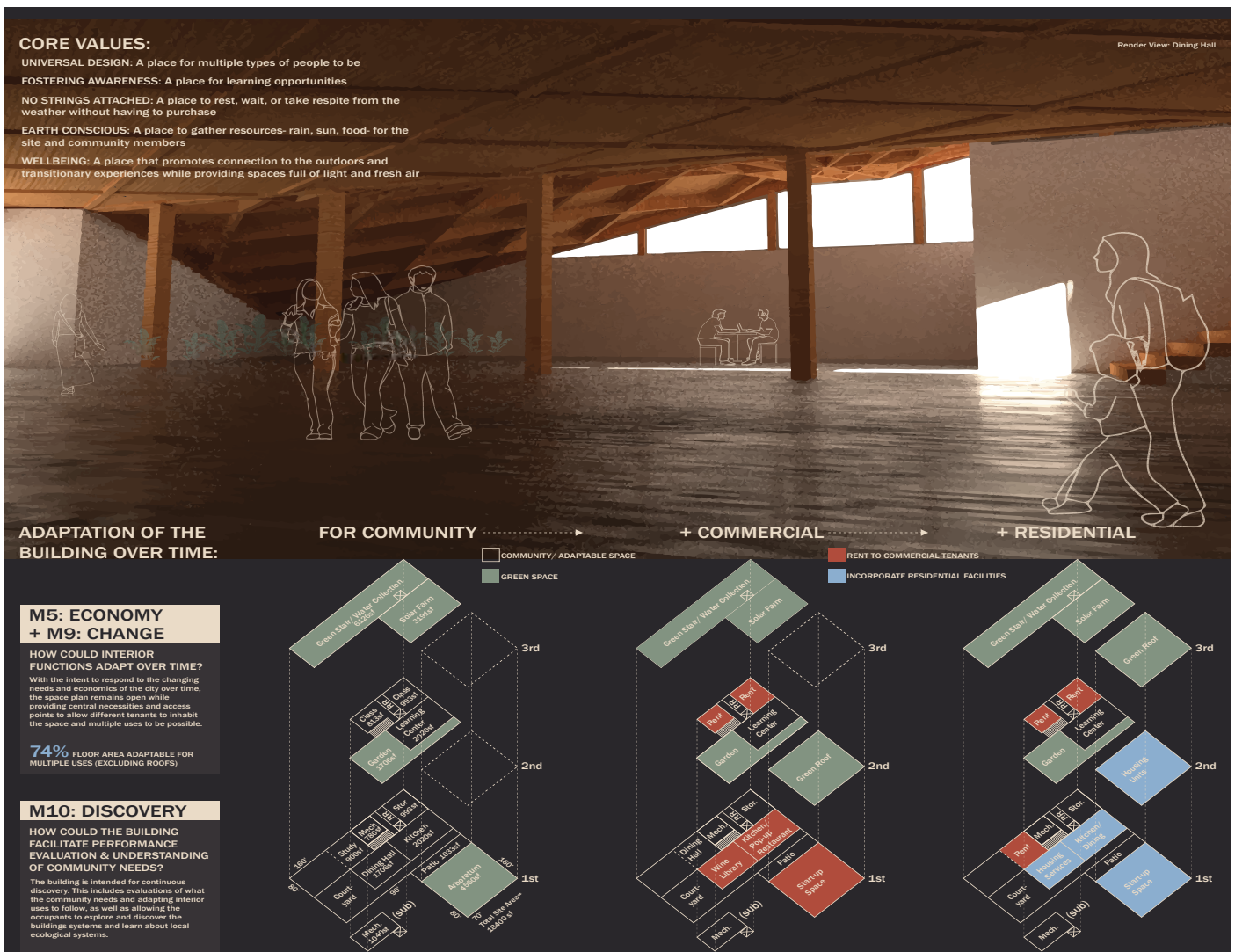


Jocelyn Reynolds Design for Ecology and Words

MEASURE 5

DESIGN FOR ECONOMY

Students created an economically sustainable space by incorporating spaces that can be used for a variety of purposes over time. Creating adaptable space creates a building that can remain economically sustainable well into the future.



Katherine Marple Design
for Economy-Percentage
of Reusable Space

MEASURE 6

DESIGN FOR ENERGY

Students sought to minimize energy use in their designs. Student designs embraced passive heating to promote more sustainable energy use and used operable windows to improve building ventilation. Additionally, students recommended using materials from within 100 miles of the building site to promote the local economy while utilizing more sustainable materials.



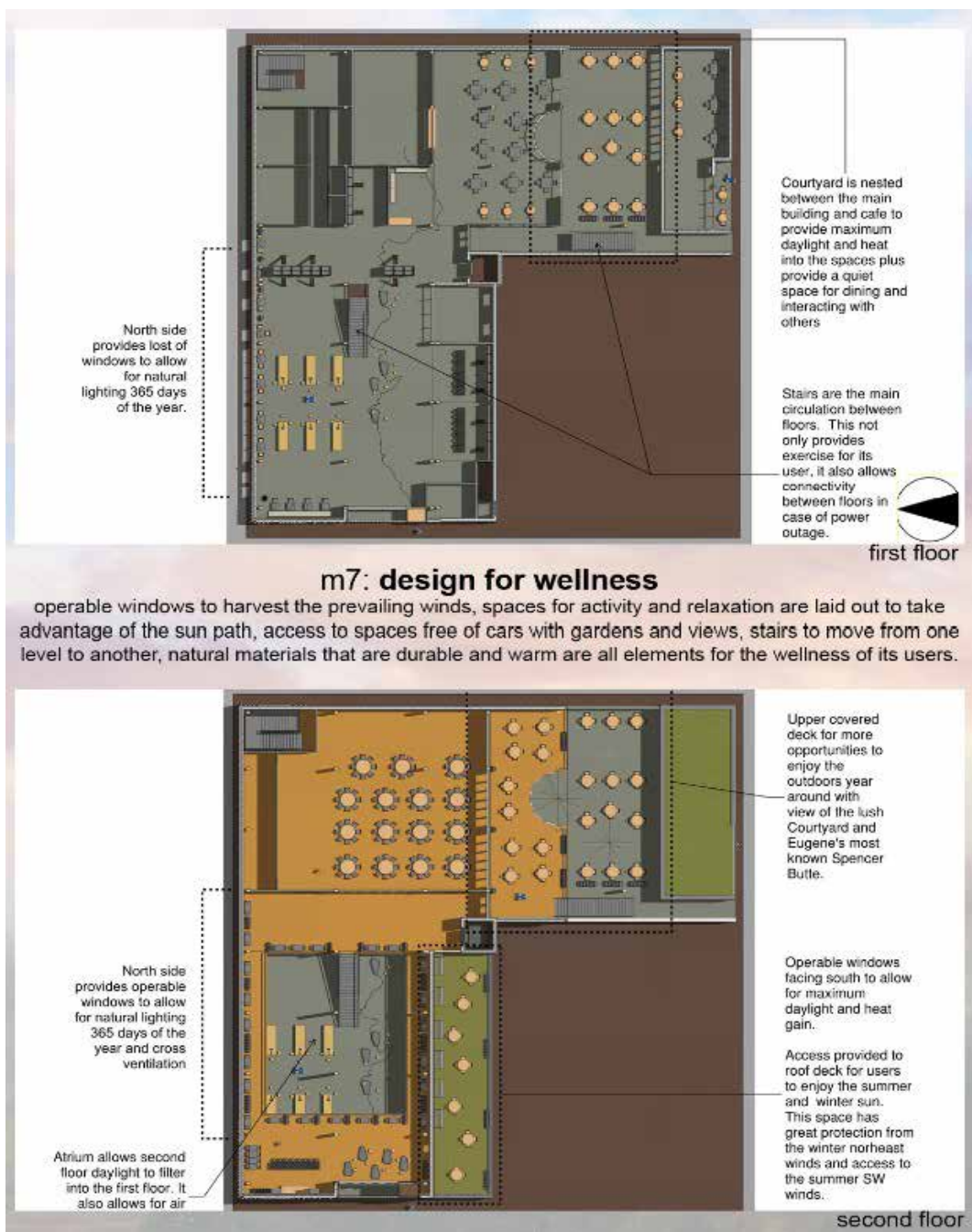
Located in a more temperate climate zone, the potential for passive heating and cooling is taken advantage of throughout the design. The atrium space that houses the living machine is strategically located in the southernmost corner of the site to maximize passive heating and create a well sunlit area for growing. Passive cooling is accomplished through large, operable windows and flexible spaces with sliding partitions at the building's main entrances that transform indoor spaces into open air spaces. Well designed clerestory windows take advantage of North / South wind patterns across the site and provide cross-ventilation throughout the space.

Courtney Sigloh Design for Energy and Words

MEASURE 7

DESIGN FOR WELLNESS

Student designs promote resident and user wellness. Student designs included operable windows, access to green spaces, use of natural light, and spaces for activity and relaxation. These features incorporate human activity and wellness into the built environment.

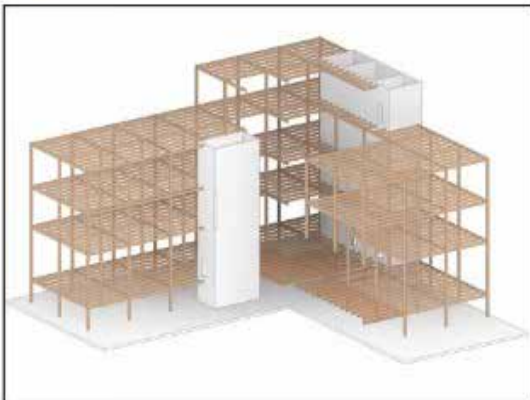


MEASURE 8

DESIGN FOR RESOURCES

Student designs emphasized the use of sustainable resources, in particular cross laminated timber (CLT), hempcrete, and cork materials. These materials have similar durability to common materials like concrete and steel but come from more sustainable resources. Additionally, these materials are recyclable and give the structure embodied carbon savings.

8 Resources



1. Mass Timber

60% Embodied carbon savings in the structure alone
-Low-carbon and renewable

2. Hempcrete

100% Recyclable
-Thermal mass
-Soundproofing, insulation, and strength properties are superior to concrete.
-Nontoxic, fireproof, and mold-resistant.

3. Cork

100% Recyclable
-Impermeable, buoyant, elastic and fire-resistant material.
-Cork expands and contracts with heat, making it ideal for radiant surfaces.
-Insulator of heat, cold, and sound.



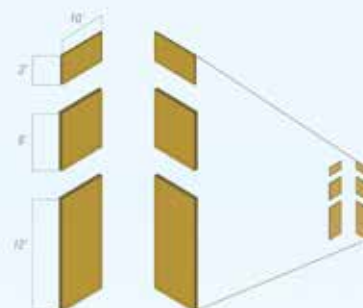
Vayle Khalaf Design for Resources

RESOURCES:

Cross laminated timber was selected for the structural elements and interior finishes. Resource acquisition meets the Living Building Challenge metric for sourcing 20% of all building materials within a 500 kilometer radius. All of the wood is sourced from D.R. Johnson, an Oregon-based manufacturer of CLT panels and glu-lam beams. The wood elements featured across the facades and in interior spaces were designed using the standard panel and member sizes produced by D.R. Johnson. The amount of material needed and, ultimately, wasted was reduced by 10% after altering the design to match with basic sizing from the supplier.



Prefabricated CLT Panel System



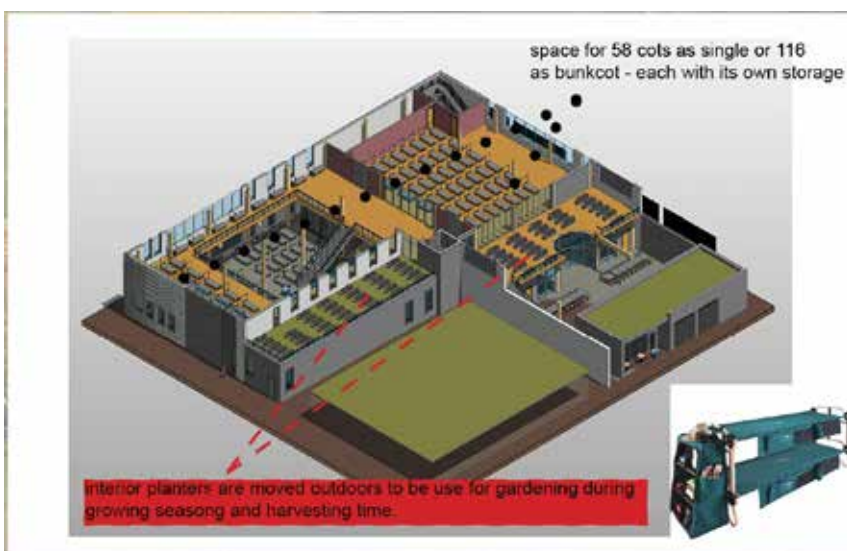
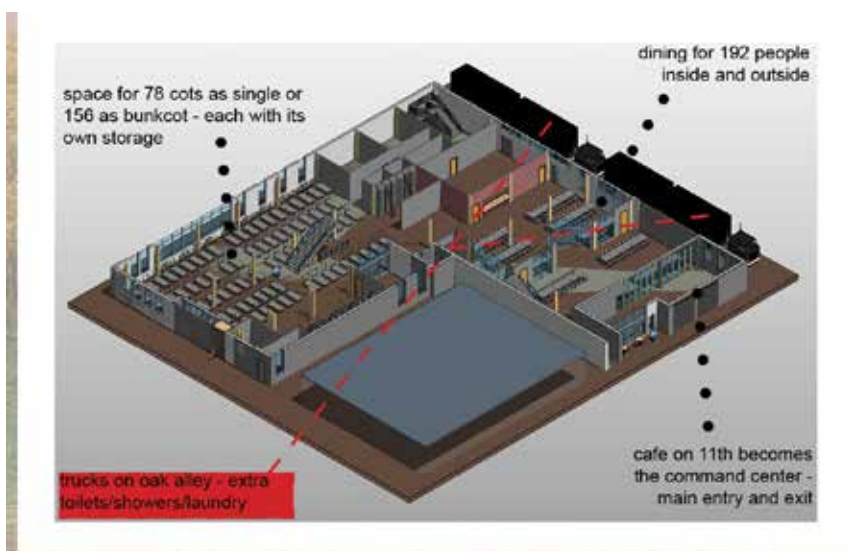
**Design based on manufacture's sizing to limit waste and cut back on costs.
- panels from D.R. Johnson Lumber

Courtney Sigloh Design for Resources

MEASURE 9

DESIGN FOR CHANGE

Some student designs incorporated potential changes in the event of an emergency. These designs included space for cots, restrooms, dining, and other spaces that could be useful during an emergency. Designs also included resources that would be sustainable in an emergency situation, including: water harvesting and storage; solar panels; and operable windows. Student designs were cognizant of potential emergencies including viruses and the Cascadia earthquake.

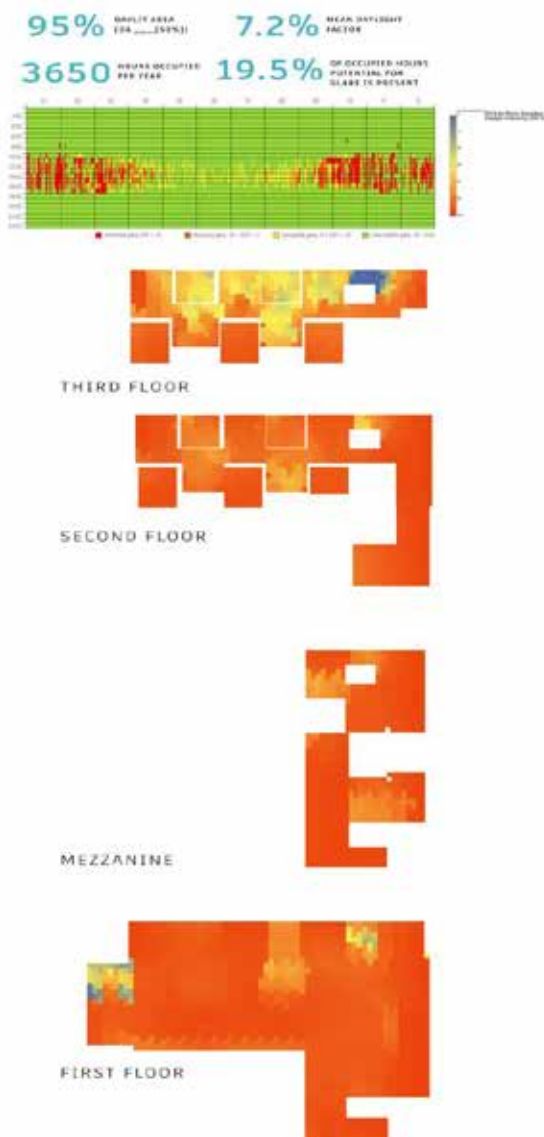
**emergency shelter facility**

- space for 272 double tier cots
- laundry facilities and two showers in the basement
- natural gas generator in the basement
- 20,000 water retention from rain harvesting in the basement
- solar panels - 60K kWh/Year
- fresh air via operable windows and roof turbines
- gardening capabilities
- ADA accessible

MEASURE 10

DESIGN FOR DISCOVERY

Designing for discovery involves surveying and studying building occupants after the building has been completed and occupied. This allows building occupants to express their opinions about the space and gives designers the chance to learn from their work.

DISCOVERY

To ensure the building performs as intended several occupant studies will be conducted to ensure the building's system are performing as expected. Additionally, these studies will allow the building's occupants the opportunity to express their opinions about the space and what things can be changed to address their needs. In addition, the advanced buildings monitoring system will have displays in each room that will indicate when it is best to open/close windows to improve the building's energy consumption. This system in return will educate the occupants so they are aware of the consequences of their actions, so they can potentially change their personal habits and consume less energy.

Kyle Tasik Image and Words

05.

CONCLUSION

Student design projects demonstrate potential solutions to designing sustainable buildings within the city core of Eugene by following guidelines established by AIA COTE. Additionally, designs demonstrate what an 'enoteca' for southern Willamette Valley wineries could look like. Students conducted site and climate analyses as well as historical contextualization to better understand underlying conditions and determine what the designs should entail.

The students added other program components to the enoteca program including affordable housing, bicycle repair, office spaces, and a market hall. These program components could enrich the downtown core and reinforce the transportation hub that Lane Transit District has established across Willamette Street.

The principles of AIA COTE informed student designs. Students designs also explored ways to make use of abundant rainwater. Designs reinforced LTD's emphasis on reducing private automobile use through design elements that enhance local pedestrian activity and bicycle use as well as public transportation. In addition to energy solutions, students explored reinforcing local agriculture by featuring market halls, demonstration gardens, and cafes. They tested the use of manufactured wood, including CLT, as the construction systems.

Lastly, the students reinforced the character of existing downtown buildings while demonstrating how increased density might affect the area. The character of the buildings that students proposed reflects their observations of Eugene as both a physical place and as a cultural heart in the Willamette Valley.

STUDENT WORK

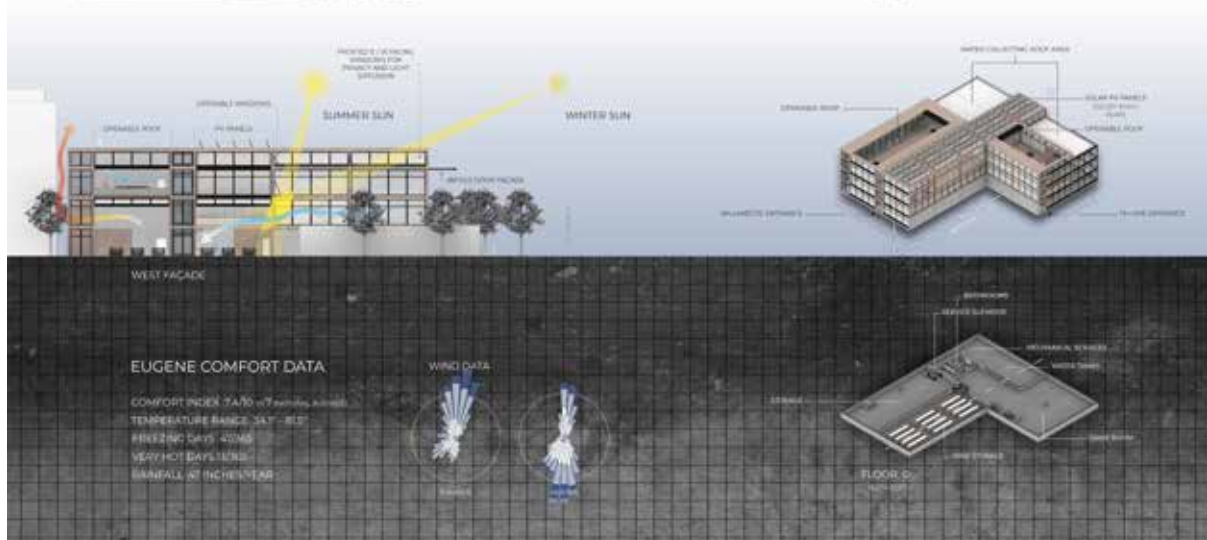
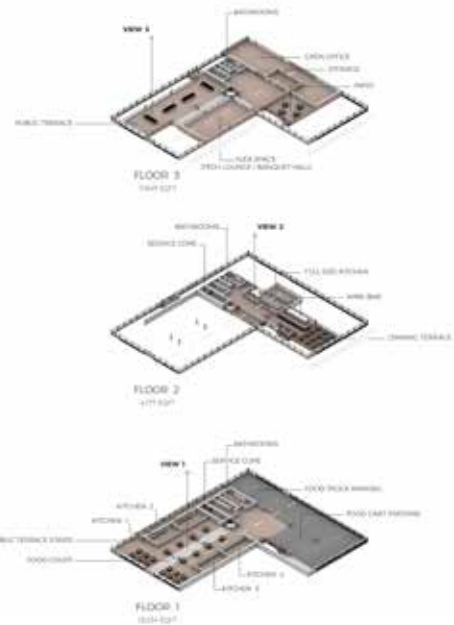
G/T EUGENE

CULINARY & STARTUP INCUBATOR
[LEARNING / CREATING / SHARING]



Alex Tapia

STUDENT WORK



Alex Tapia

STUDENT WORK

G/T EUGENE

CULINARY & STARTUP INCUBATOR
(LEARNING / CREATING / SHARING)

CULINARY EXPERTISE:



The building is designed to be a hub for culinary expertise, featuring a large kitchen area with a central island and a smaller room for food preparation. The design emphasizes open circulation and a connection to the outdoors, with a large glass facade and a covered walkway leading to a courtyard.

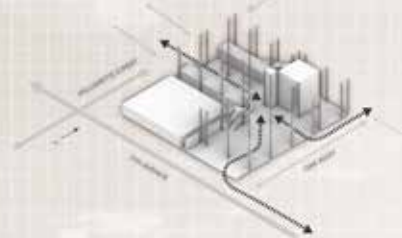


TECH DEVELOPMENT:



The building is designed to be a hub for tech development, featuring a large open space for collaboration and a smaller room for focused work. The design emphasizes open circulation and a connection to the outdoors, with a large glass facade and a covered walkway leading to a courtyard.

OPEN CIRCULATION:



The building is designed to be a hub for open circulation, featuring a large open space for collaboration and a smaller room for focused work. The design emphasizes open circulation and a connection to the outdoors, with a large glass facade and a covered walkway leading to a courtyard.



Alex Tapia

STUDENT WORK

DISCOVERY

THE PREMISE OF THE DESIGN IS BASED ON THE NOTION OF DISCOVERY AS SOMEONE STEPS OFF THE BUS INTO EUGENE FOR THE FIRST TIME THEY ARE FRONTED WITH THIS BUILDING AND ARE ENCOURAGED TO ENTER. INSIDE THEY WILL FIND A RICH CULTURE AND VARIETY OF LOCAL FOOD. THERE ARE LEVELS OF KNOWLEDGE BOTH FOR THE PROFESSIONALS AND CONSUMERS. THE WINE TASTING ROOM PROVIDES A LOCAL HUB FOR THE OREGON WINE REGION. THE TECH/LABING SPACES ALLOW USERS TO DISCOVER TALENTS AND EXPORT THEM FOR GROWTH. CUT INTRODUCES EUGENE AND DEVELOPS A PERSONAL UNDERSTANDING OF THE AREA.

INTEGRATION

CUT EMBODIES THE ESSENCE OF OREGON THROUGH ITS TIMBER CONSTRUCTION AND EMPLOYS METHODS TOWARDS A SUSTAINABLE FUTURE. THE LOCAL CLIMATE LENDS ITSELF TO A COMFORTABLE INDOOR ENVIRONMENT IN THE WARM SEASONS THROUGH OPERABLE WINDOWS AND DAYLIGHT CONTROL. PROGRAM IS ARRANGED IN ACCORDANCE TO LIGHTING NEEDS AND SITE ADAPTACIES, SUCH AS VIEWS TO SPENCER BLVD.

WELLNESS

THIS REGION NATURALLY PROMOTES A HEALTHY LIVING. CUT ENHANCES THIS BY PROVIDING LOCAL FOOD AND DINING OPTIONS. EVERY SPACE HAS ACCESS TO A WINDOW FOR DAYLIGHT. NATURAL VENTILATION, OR A MENTAL BREAK IT PROMOTES IMPROVEMENT OF SKILLS AND ENCOURAGES FRIENDLY COMPETITION. THE COMMUNITY CENTERED DESIGN ALLOWS FOR MANY SPACES TO LOUNGE AND RELAX AND MOVE THROUGHOUT.

ENERGY

DUE TO ITS ENVIRONMENT THE BUILDING IS ABLE TO LIVE OFFSHORE MOST OF THE YEAR. THE IMPERMEANT NATURE OF THE PROGRAM ENABLES A GREAT REDUCTION OF POWER. IT IS ABLE TO SUSTAIN ITSELF IN LOW OPERATION THROUGH THE SOLAR ENERGY CAPN AND WATER WHEN NEEDED. THE NEEDS FOR COOLING IS MINIMAL. IN THIS REGION AND NATURAL VENTILATION CAN DO MOST OF THE WORK. HAVING A MOSTLY TRANSLUCENT SHELL ALLOWS FOR THE REDUCTION OF ELECTRICAL NEEDS.

ECOLOGY

THE REDUCTION OF ENERGY THROUGH SUSTAINABLE MEANS WAS A GOAL FOR THE DESIGN BY MINIMIZING THE ENERGY USAGE. IT MINIMIZES ITS IMPACT ON THE ECOLOGY. THE SYSTEM EMPLOYS RAINWATER COLLECTION TO HELP OFFSET WATER INTAKE AND THE DESIGN FURTHER ENCOURAGES THE REGION'S ENVIRONMENTALLY CONSCIOUS IDEOLOGY.

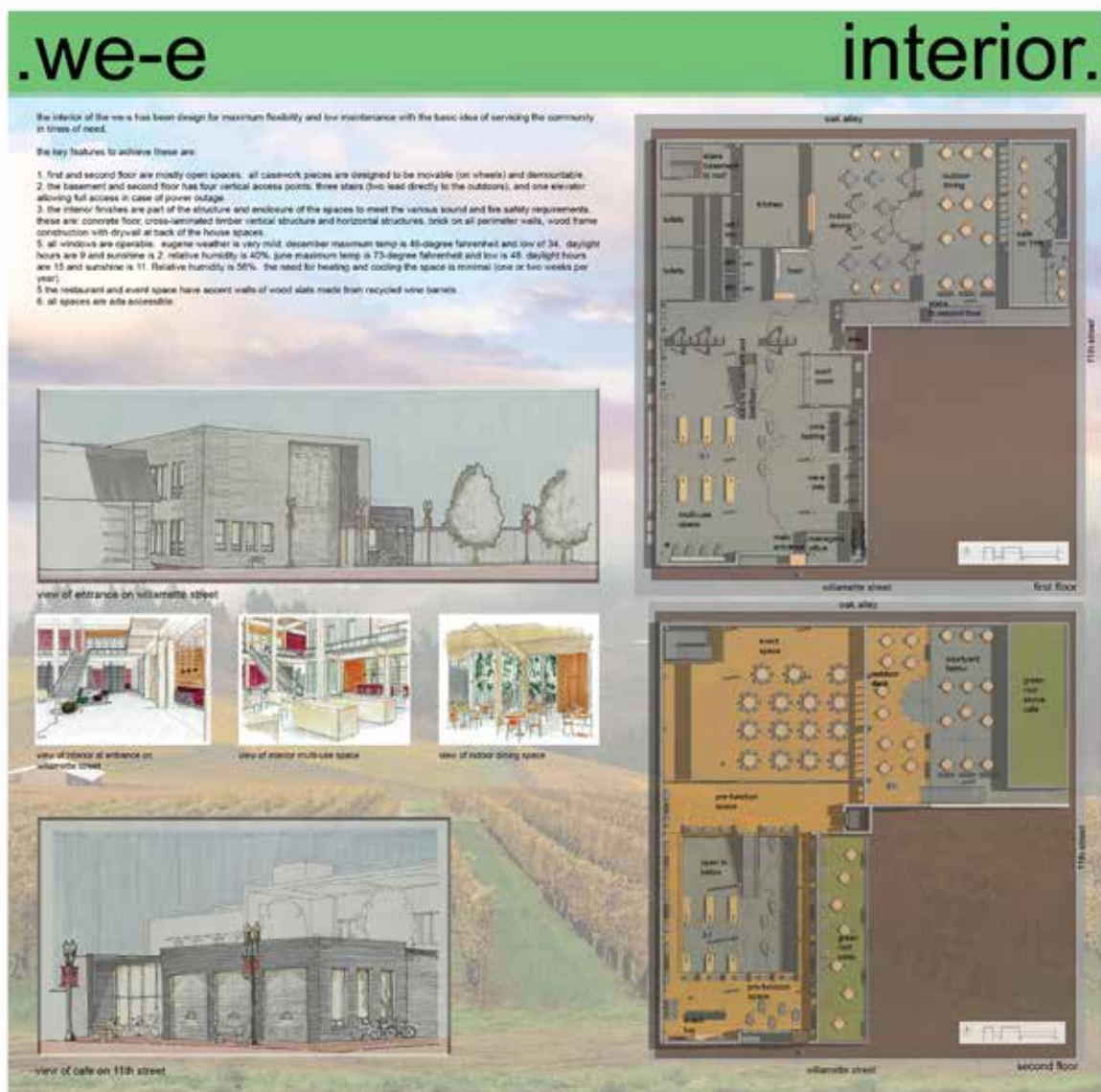
CHANGE

THE DESIGN HAS A LOT OF PROGRAMMED SPACE, BUT NOT TOO MUCH PRESCRIBED SPACE. THE FIRST FLOOR ALLOWS FOR INFORMAL FOOD OPTIONS, THAT CAN BE BOTH INSIDE AND OUTDOORS. THE THIRD FLOOR HAS AN OPEN OFFICE AND FEELERS A FLEX SPACE. THE PUBLIC TERRACE OVERLOOKING THE STREET CAN ALSO BE AN ACTIVATED SPACE INDIVIDUALLY OR SERVE AS AN EXTENSION TO THE FLEX SPACE. NO ONE IN THE BUILDING HAS A PERMANENT SPACE, AS THEY ARE ENCOURAGED TO USE THE SPACE AND MOVE ON TO GREATER VENTURES. THE DESIGN ANTICIPATED CHANGE AND BEING PRIMARILY A CARCDED STRUCTURE INSIDE A SHELL IT WILL EASILY ADAPT.



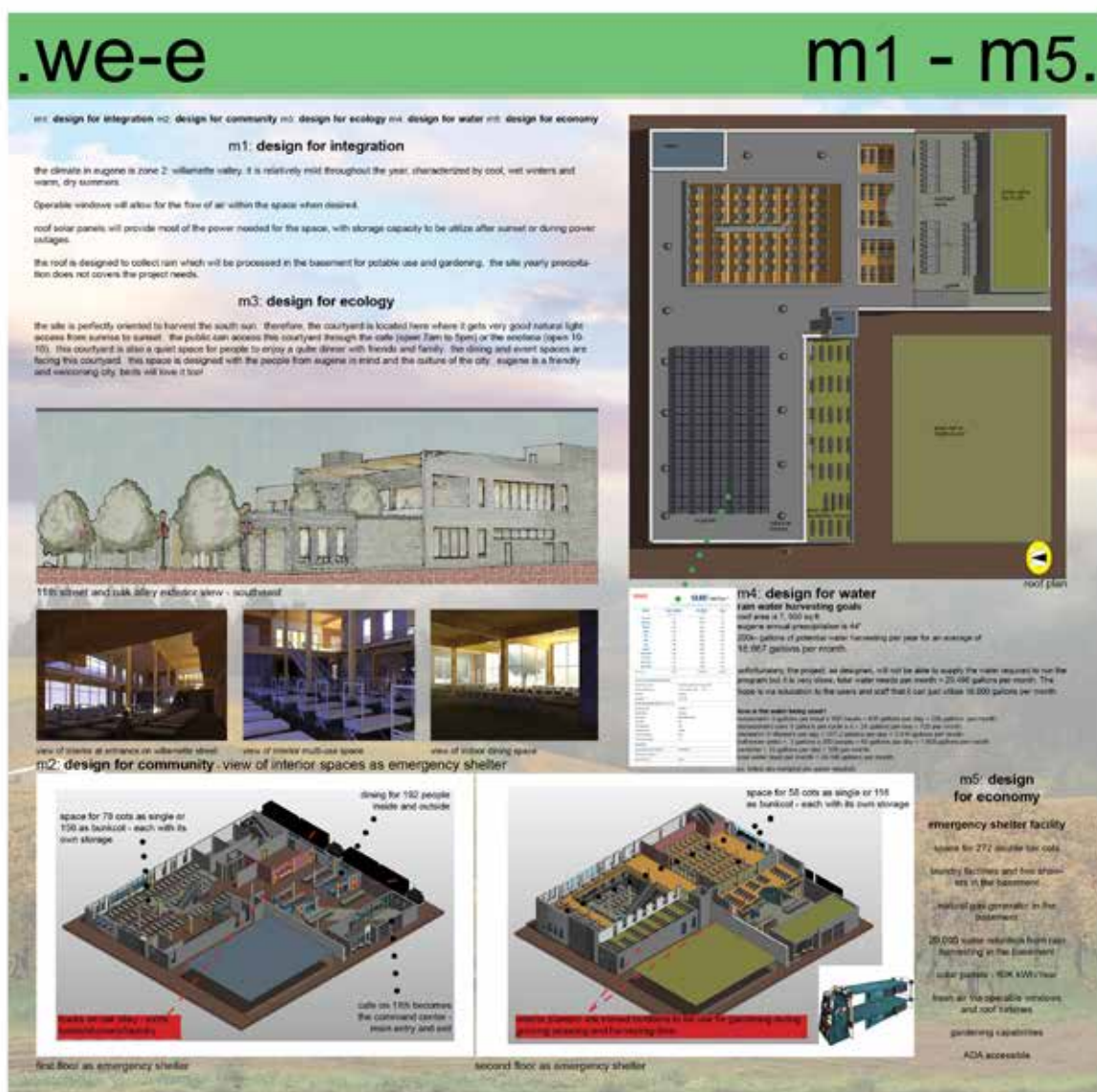
Alex Tapia

STUDENT WORK



Amy Arroyo

STUDENT WORK



STUDENT WORK

.we-e
m6 - m10.

m6: design for energy

the most energy use on this project is in the process of washing and disaffecting the dishes for the restaurant, lighting, and heating. the roof solar panels shall supply enough power to heat harvested water stored in the basement, extra energy provided by the solar panels will be store in batteries to support the lighting needs and heating.

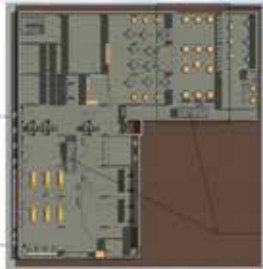
stormwater, gray water and rainwater will be treated on site, the water treatment equipment, laundry room equipment, and emergency generator all run on natural gas. the city of Eugene provides 100% renewable energy as option. their energy is generated by hydropower, wind, and solar.

the water tank and coils

thickly insulated barrel shaped tank in aluminum sheeting, 5000 Gallons capacity each, since we need water on demand at 150-degree and at 140-degree, we will have two tanks dedicated to the kitchen needs.


this volume of water, 5000 gallons, only loses 1.62 degrees of heat in 24 hrs, a very high insulation value. once it reaches its maximum temperature it should be low energy to maintain constant.




the coils are made of copper, one set of coils is used to distribute heat to the storage tank and the other is used to remove heat energy to supply a demand side heat such as the dishwasher in the commercial kitchen.




m7: design for wellness


operable windows to harvest the prevailing winds, spaces for activity and relaxation are laid out to take advantage of the sun path, access to spaces free of cars with gardens and views, stairs to move from one level to another, natural materials that are durable and warm are all elements for the wellness of its users.





Basement floor plan



m8: design for resources | m9: design for change

my goal is always to use the least amount of materials. three major materials are used on the project: recycled brick and stone, polished concrete, and wood. all these can be source in and from Oregon.

all these materials are earth based and extremely durable. brickstone and concrete are use for the walls and floor. i selected things to assist on the passive heating component of the project as well as their long life cycle and easy maintainable. this building is to function as a shelter, therefore durable materials is internal. wood is used for the structure and beauty. the structure is to be all advanced creating warmth with its exposed Douglas fir beams and beams wood. the second red wood joints are added to create interior.

m10: design for discovery

learning on how to design for integration, community ecology, water, economy, energy, wellness, resources, change, and discovery will form part of my new career. i am an interior designer who practiced for 17 years and this is my first studio work as graduate student in architecture. this base will serve me as platform to everything i will design in the future.

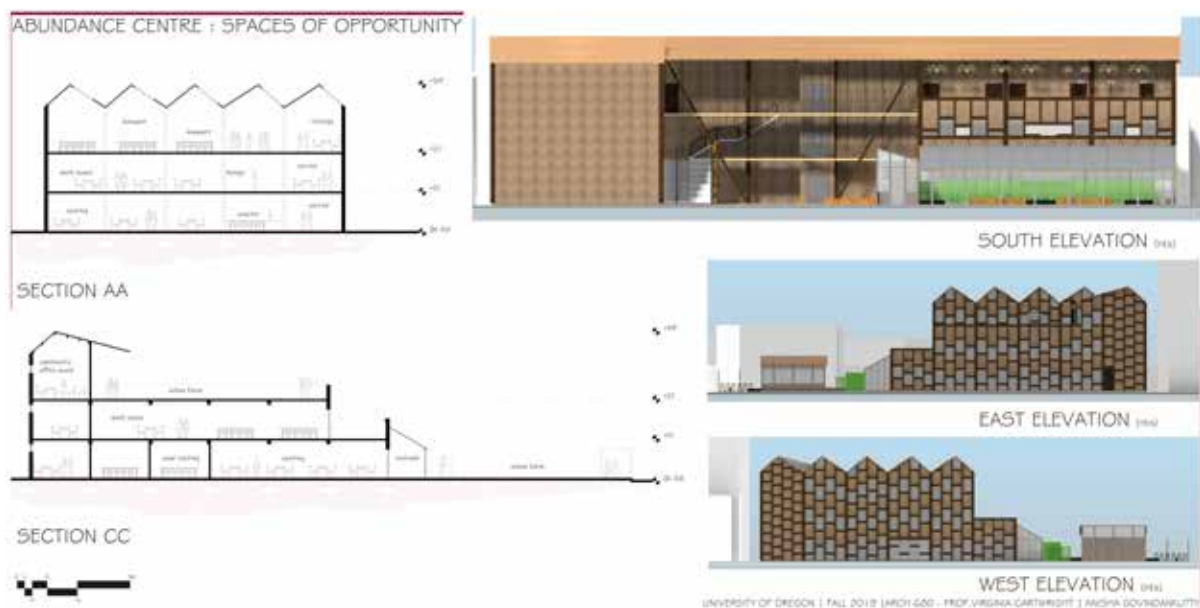
Amy Arroyo

STUDENT WORK



Anisha Govindankutty

STUDENT WORK



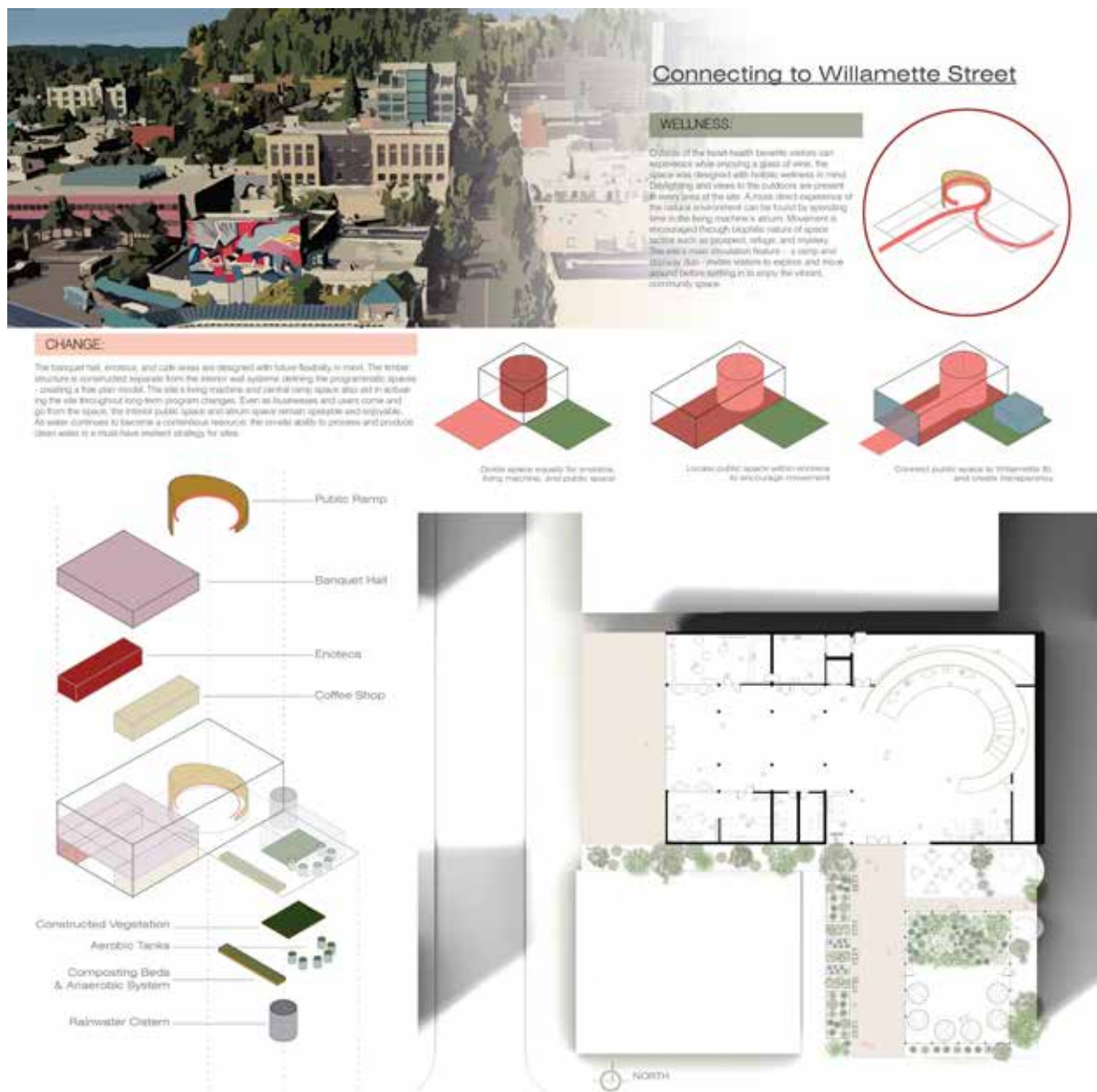
Anisha Govindankutty

STUDENT WORK



Anisha Govindankutty

STUDENT WORK



Courtney Sigloh

STUDENT WORK



Courtney Sigloh

STUDENT WORK

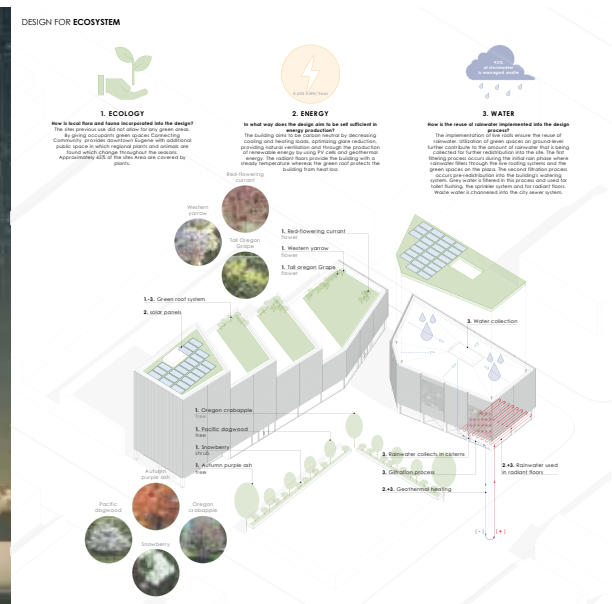


Courtney Sigloh

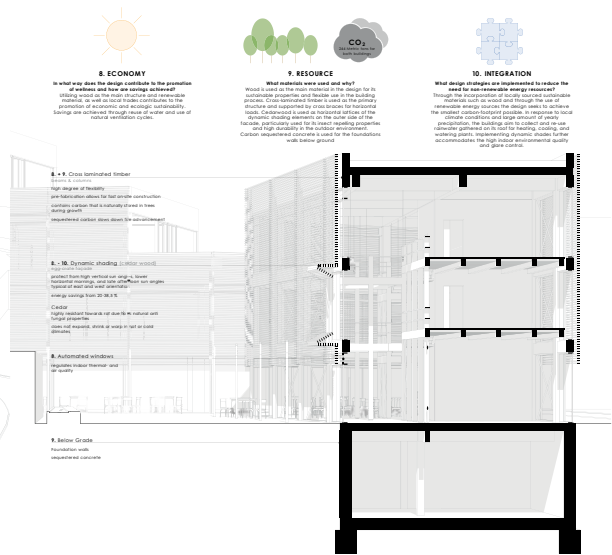
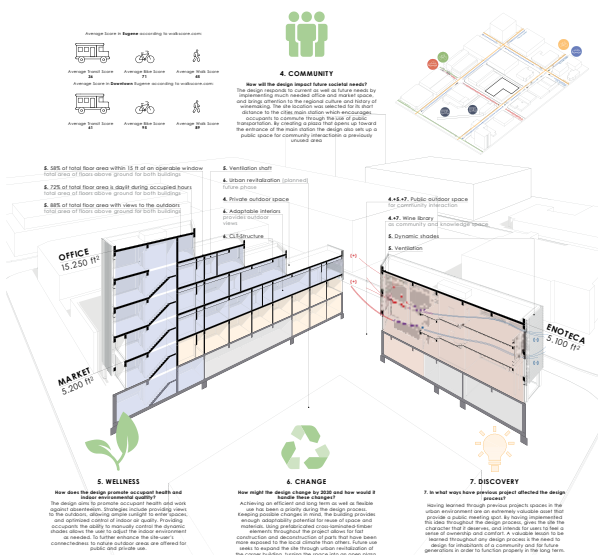
STUDENT WORK



DESIGN FOR ENGAGEMENT



DESIGN FOR SUSTAINABILITY

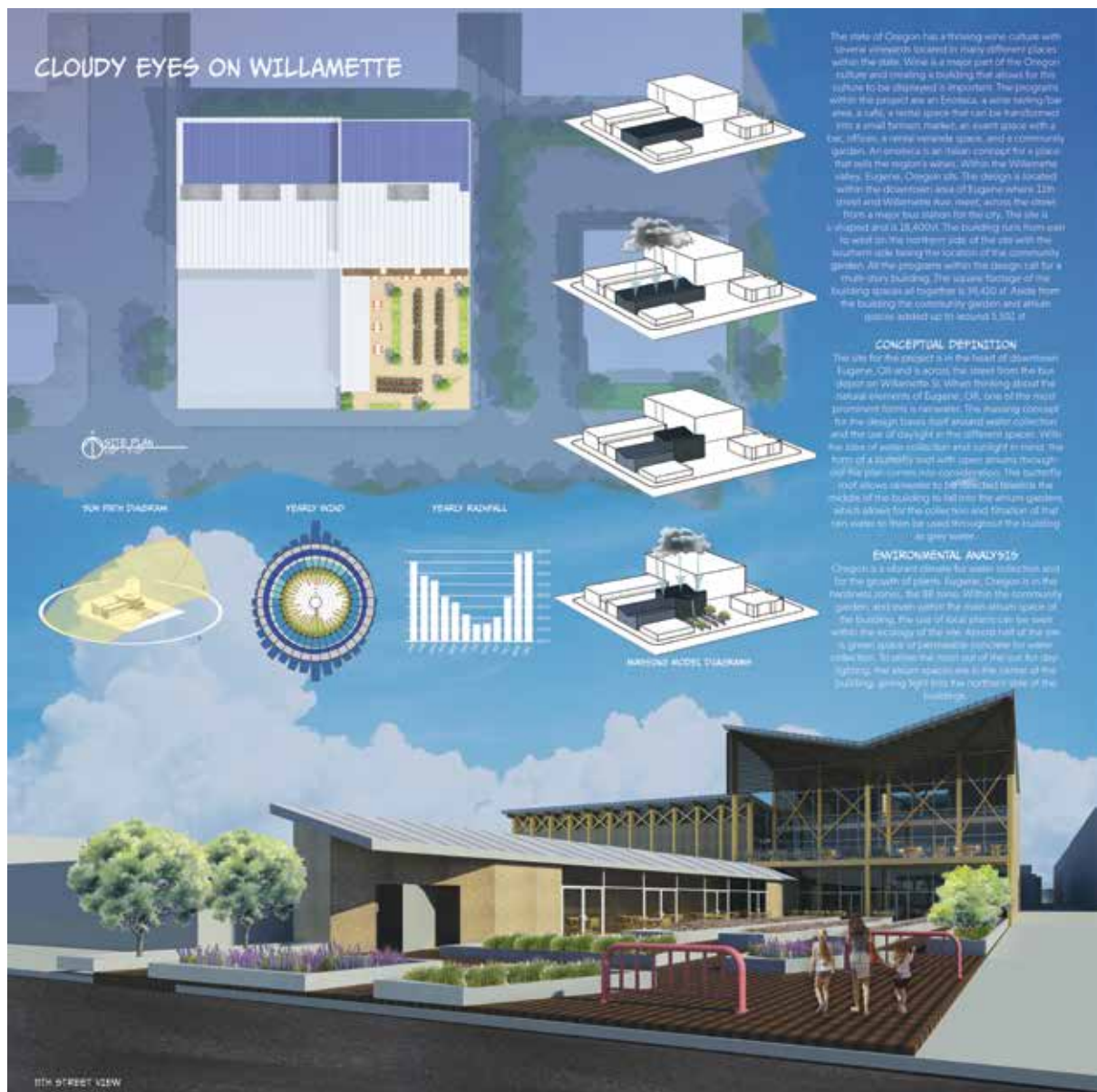


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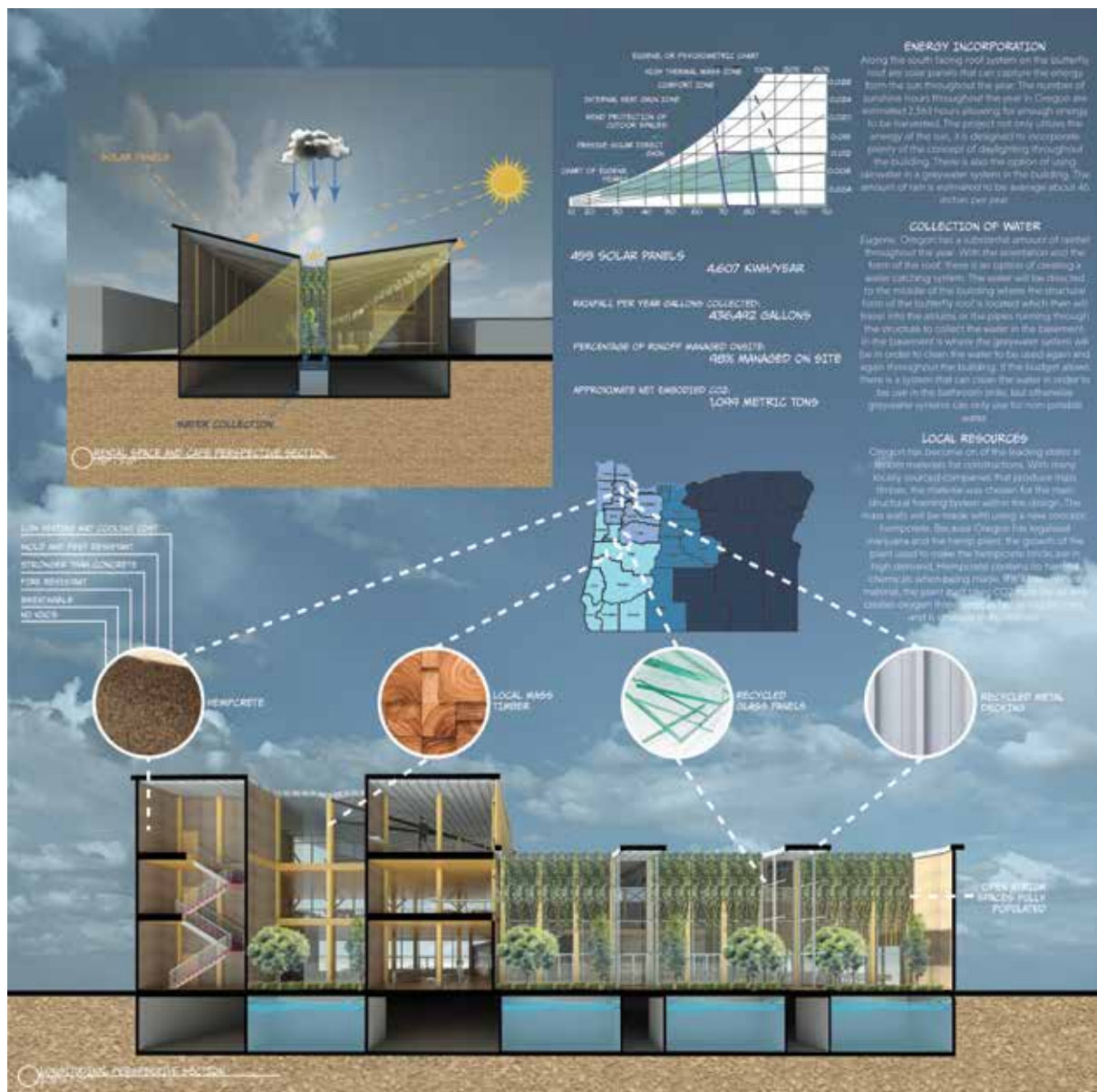
David Deussen

STUDENT WORK



Emma Davis

STUDENT WORK



Emma Davis

STUDENT WORK



Emma Davis

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Emma Davis

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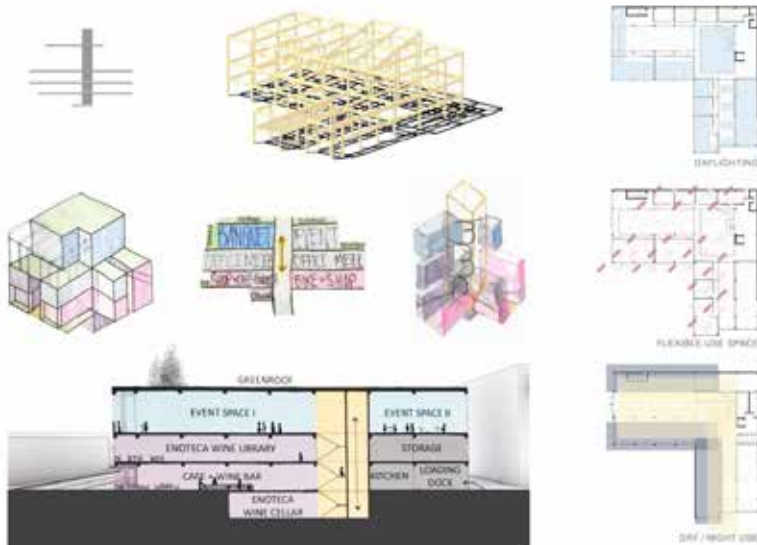


Jocelyn Reynolds

STUDENT WORK



ATRIUM // HEARTBEAT



WELLNESS

This design promotes occupant well-being through daylighting strategies and user autonomy. Operable windows with manual shades provide natural ventilation and allow users to interact with the building systems to control air comfort. Low-VOC materials are used to ensure good indoor air quality. The radiant heating system of floors provides comfort and minimizes noise. A central staircase and pleasant pedestrian flow serves to improve the site permeability and movement through the building, and encourages elevator use. A bike garage and workshop with community toolroom are provided to encourage cycle commuting.

CHANGE

This building serves as a hub for community engagement programs, including education workshops on sustainable lifestyle elements such as rainwater harvesting, alternative management and gardening, all of which increase the community's resiliency. The building itself is designed as a living machine with its passive cooling strategy and radiant heating design, as well as its integrated harvesting system and gardening capabilities. The building design includes numerous flexible spaces that can be adapted to suit evolving user and programming needs. The co-working offices and program space have easily adjustable partition walls, while the largest hall can support a range of uses and be easily subdivided for future expansion.

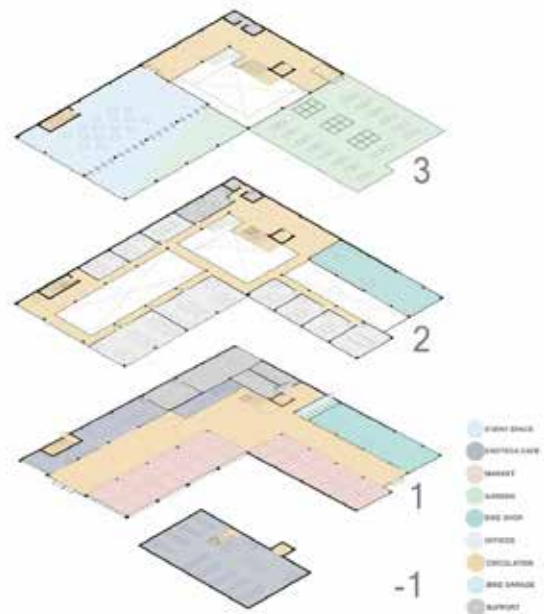
ECONOMY

This urban gathering hub supports local entrepreneurs from a diverse range of disciplines. To allow for day-to-day and future reconfigurations of rooms and program changes, the spaces are designed to be flexible in use, with sliding partition walls and open concept floor plans. The large event space can be subdivided into smaller spaces, divided by local community groups who will be meeting in use. The office incubation floor can be subdivided into individual studio work spaces or kept as an open office co-working space, depending on the tenant desires. The highly flexible open plan of the ground floor indoor public market space facilitates various uses of program benefits for local artisans and makers. Operational costs are reduced by energy efficient radiant floor heating, passive cooling, and a rainwater harvesting system.

Jocelyn Reynolds

STUDENT WORK

PEDESTRIAN ARCADES

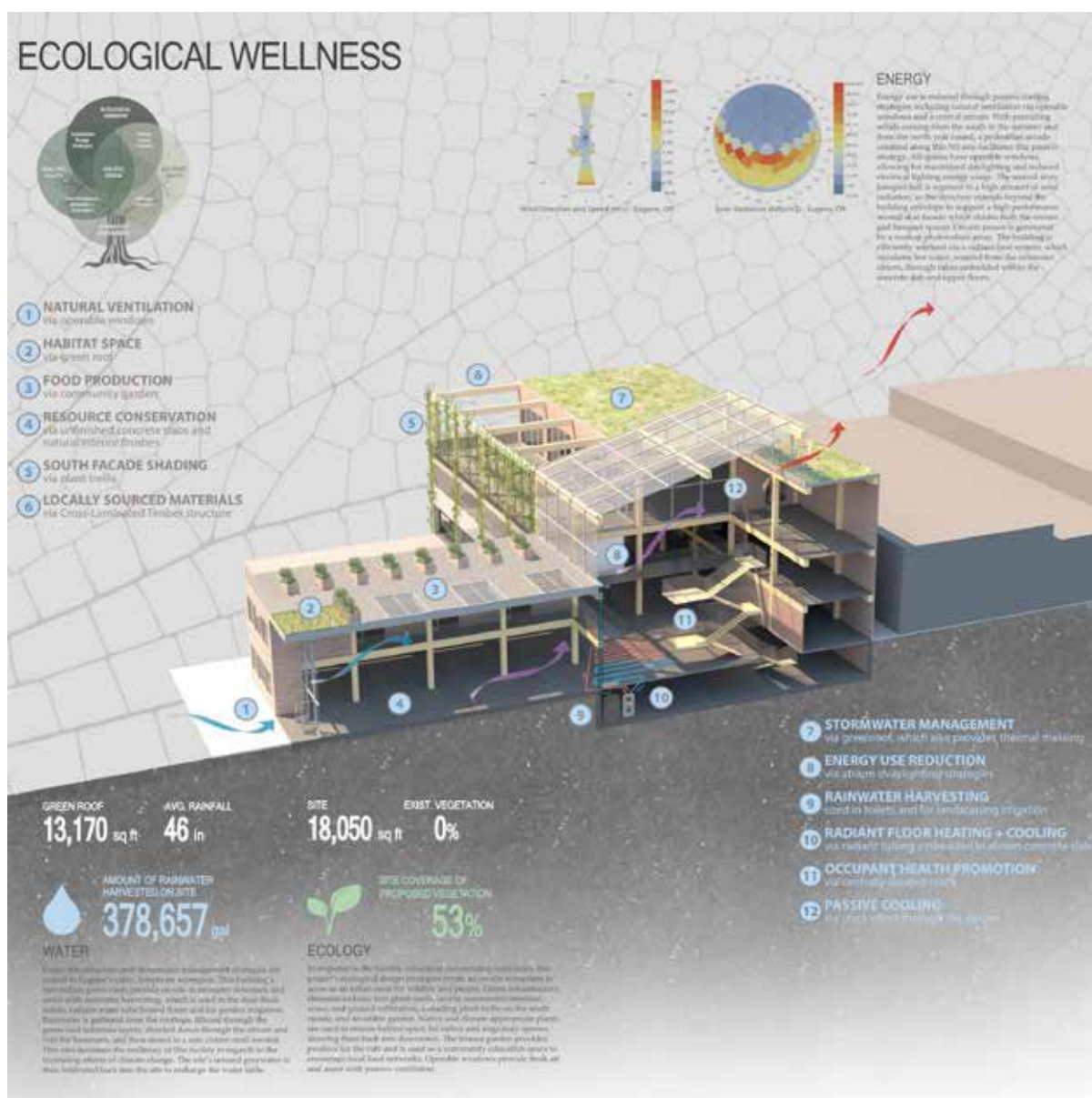


URBAN ENOTECA



Jocelyn Reynolds

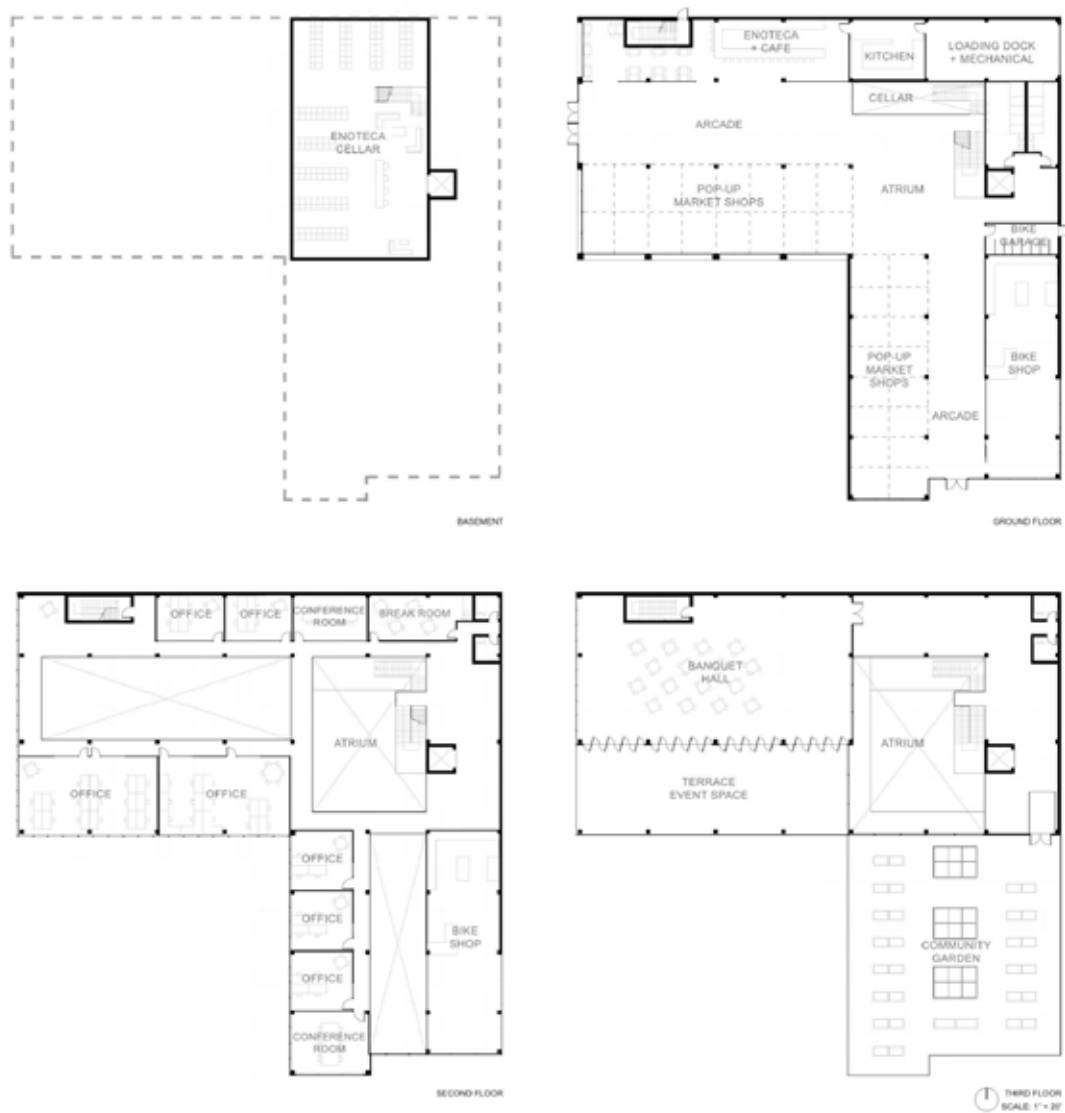
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Jocelyn Reynolds

STUDENT

WORK



Jocelyn Reynolds

STUDENT WORK



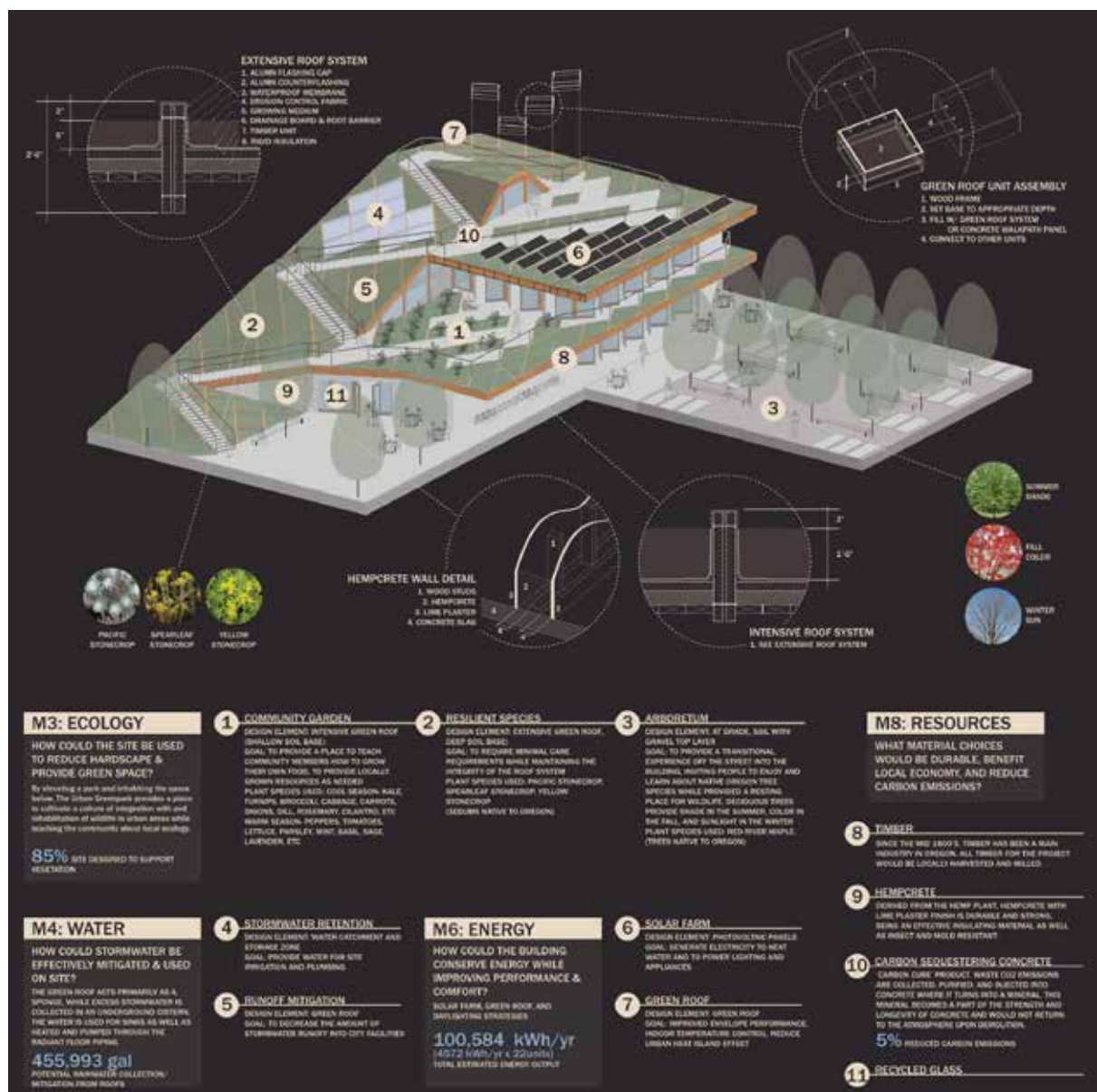
Katherine Marple

STUDENT WORK



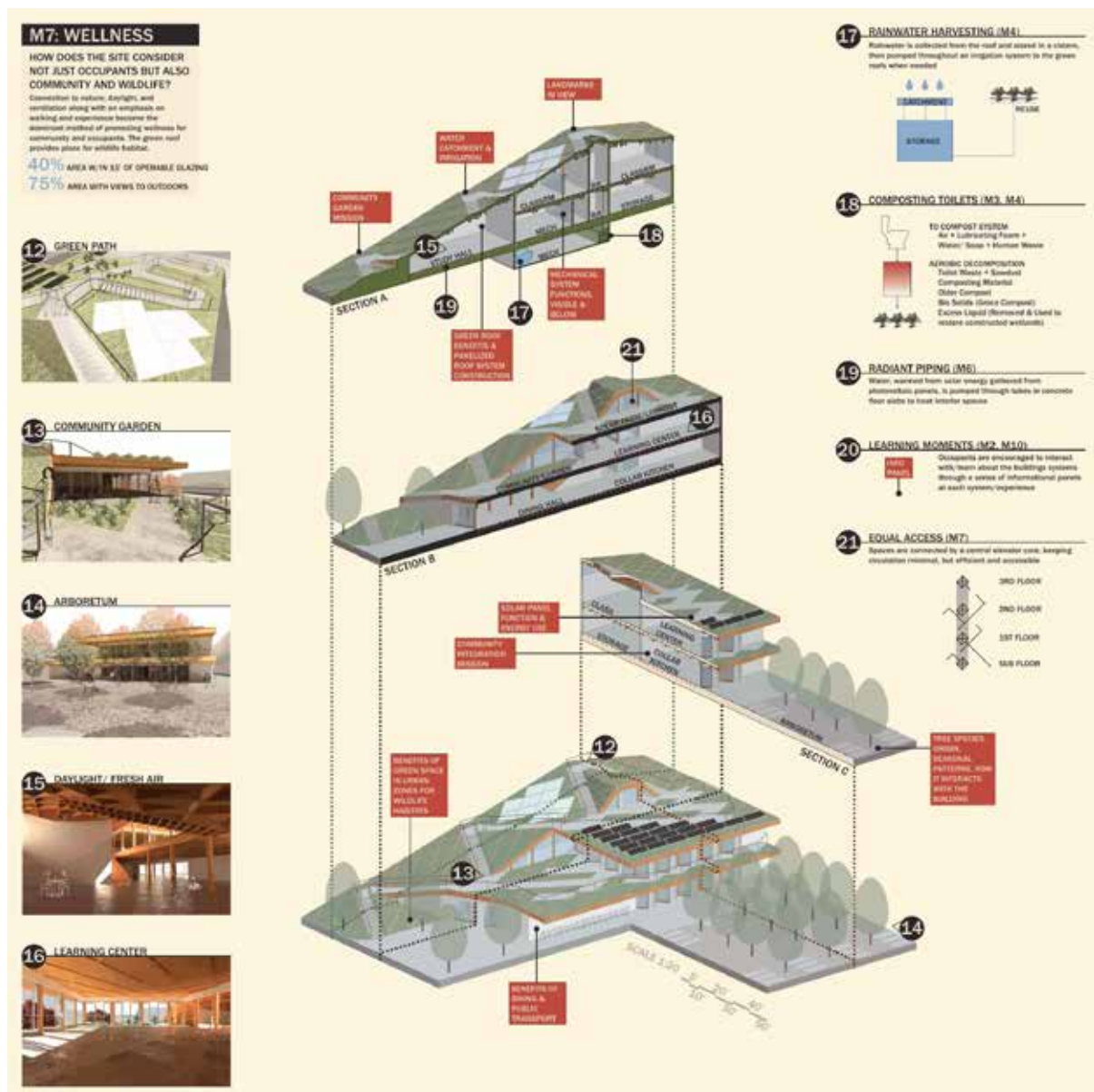
Katherine Marple

STUDENT WORK



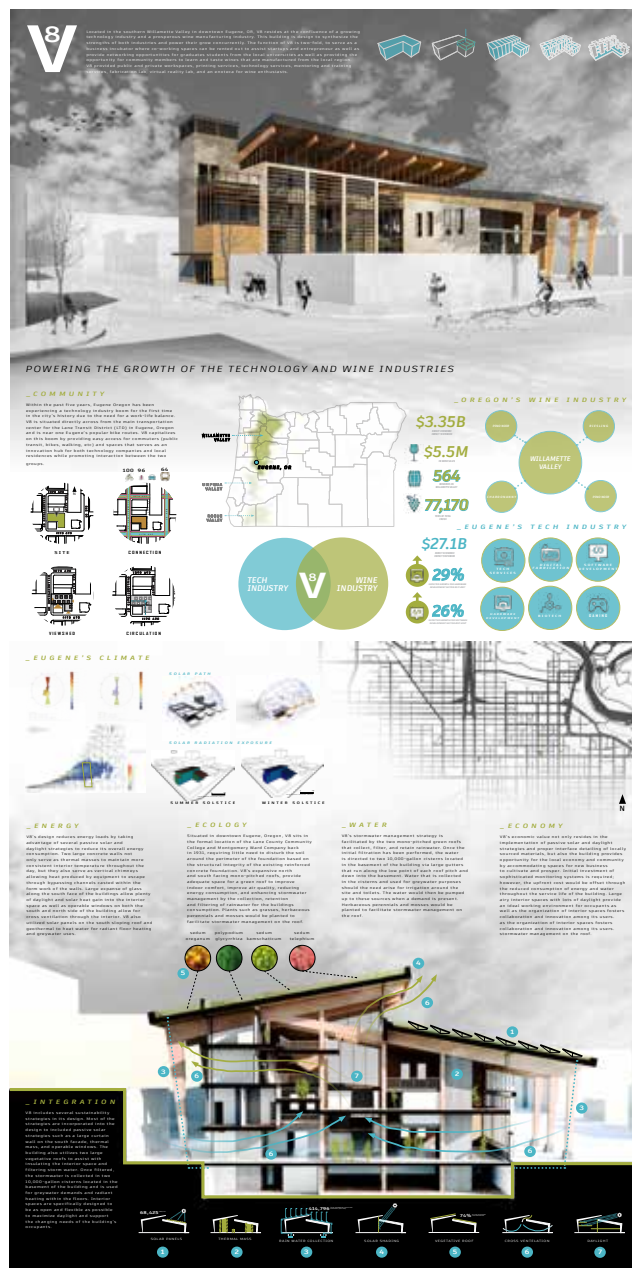
Katherine Marple

STUDENT WORK



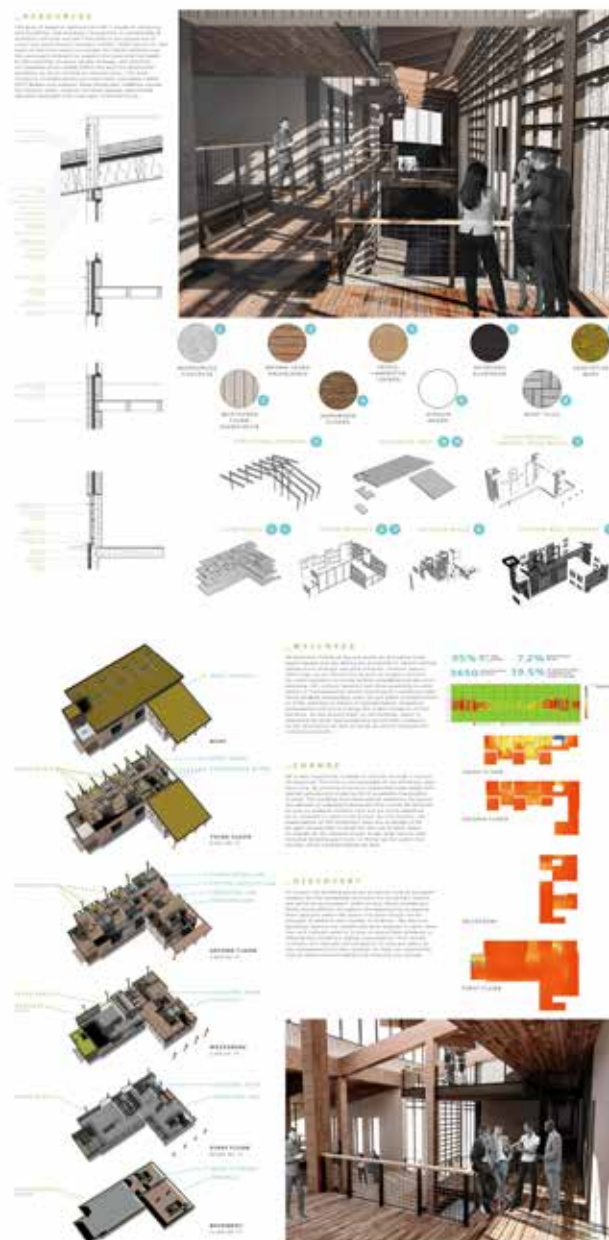
Katherine Marple

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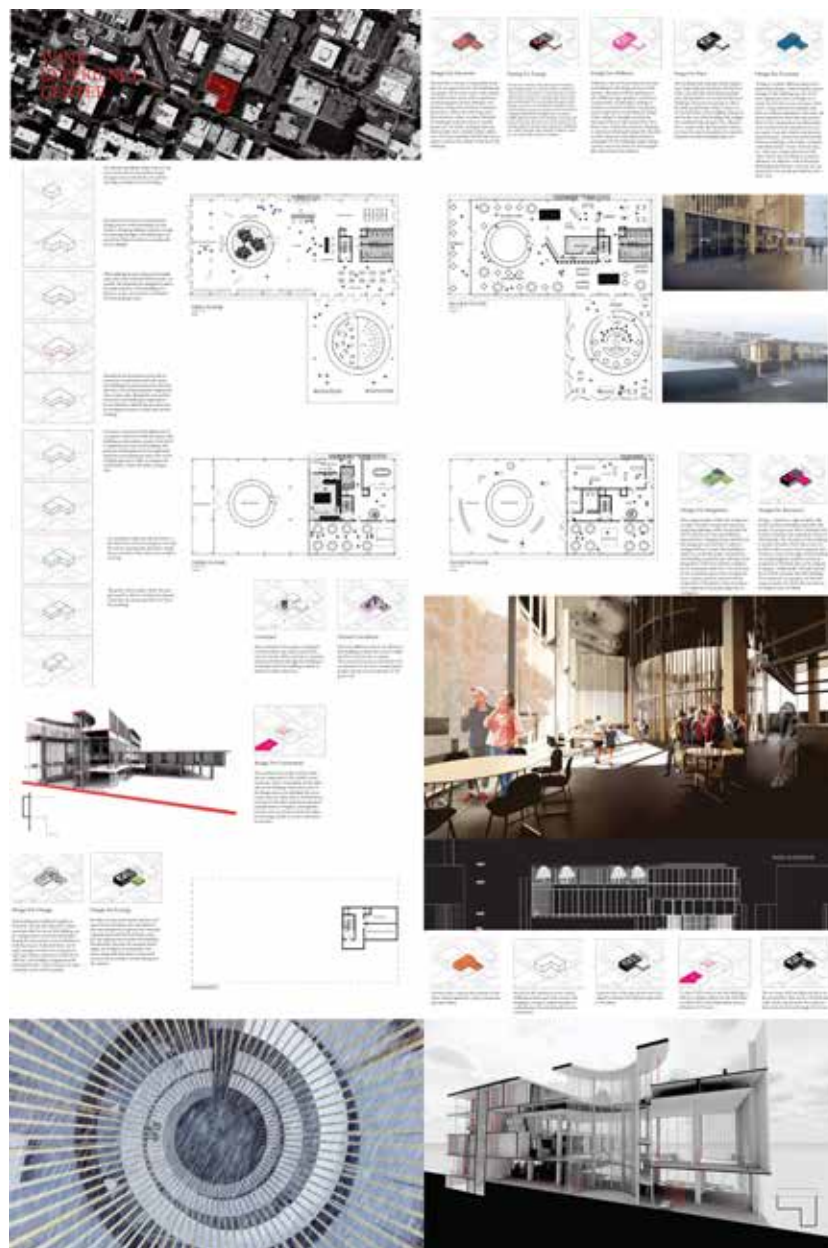
Kyle Tasik

STUDENT WORK



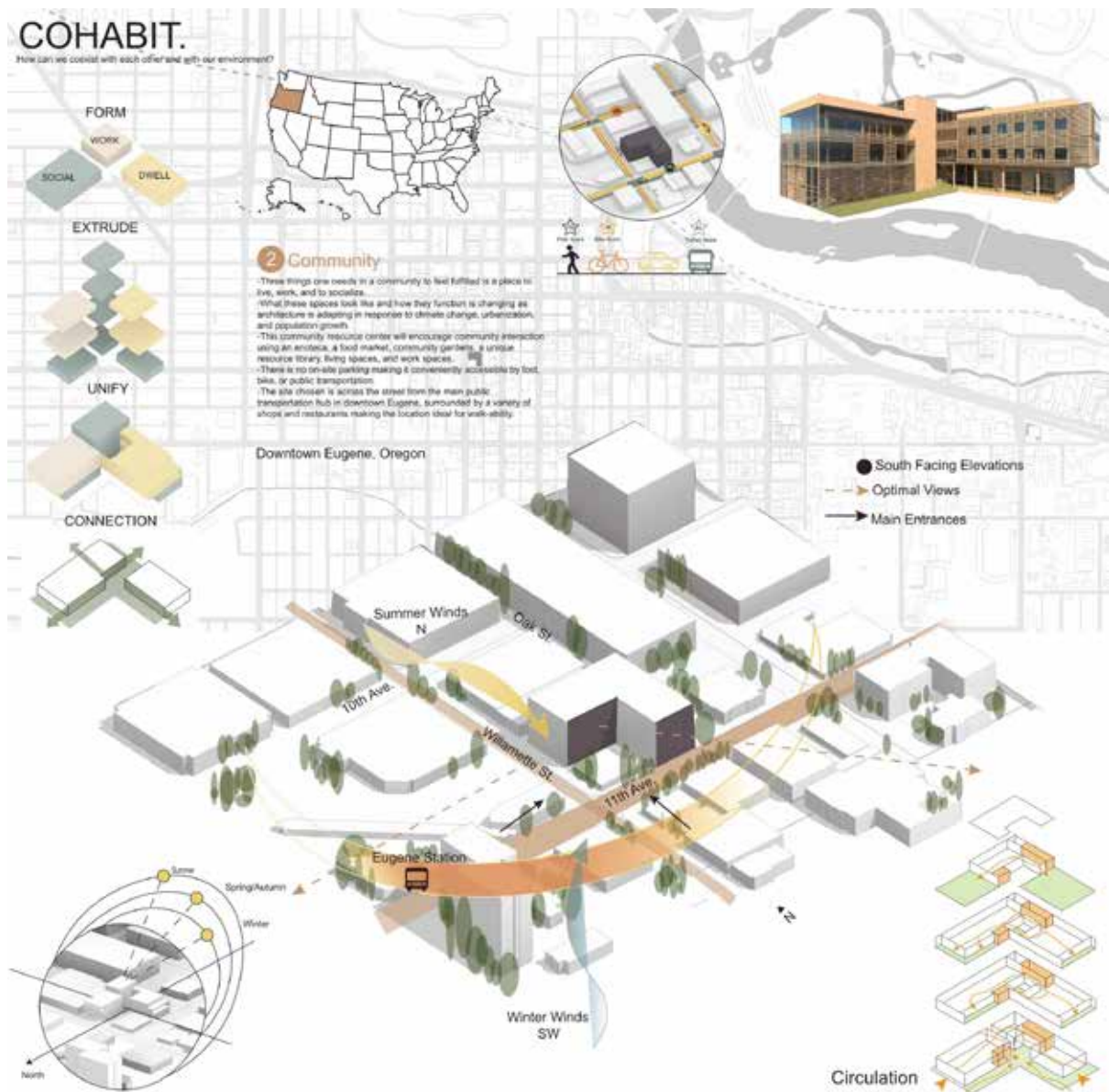
Kyle Tasik

STUDENT WORK



Pooria Golestanirad

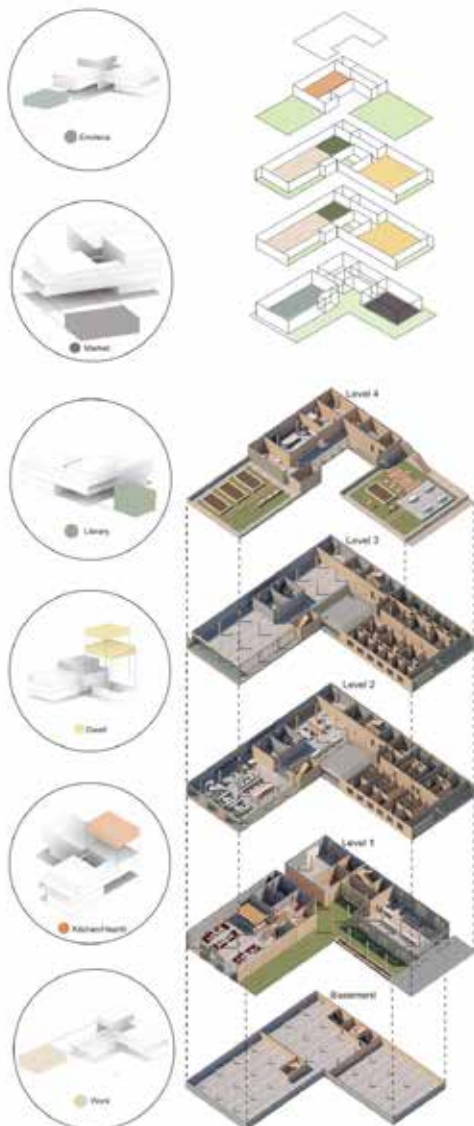
STUDENT WORK



Vayle Khalaf

STUDENT WORK

Program



9 Change

Affordability

2,165 Homeless in Eugene

67% Of people experiencing homelessness in Lane County are single adults.
Single and double bedroom apartments provide affordable housing to the community of Eugene to provide a solution to this issue.

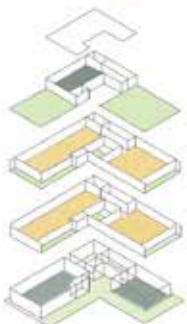
Mass timber may be the answer to the affordable housing crisis.

Resiliency

The materials and structural system of the building enhance versatility and durability.
The sustainable mass timber structure is practical, and has safe application and adaptive reuse potential.
Mass timber has resistance to fire due to its charring properties, and will survive full burn and remain structurally intact.
Mass timber's resilient design makes it easily repaired following an earthquake.
In case of power loss the building's radiant heating system will continue to function.
The site also captures and stores rainwater in case of a natural disaster.

Adaptability

The spaces are adaptable and easily re-programmable to new uses if so desired.
Adaptive program allows the building to become a shelter with the rise of climate change.
Food resources on site and passive systems will allow the building to still function in the event of a natural disaster.



STUDENT WORK

8 Resources



1. Mass Timber

80% Embodied carbon savings in the structure alone
-Low-carbon and renewable

2. Hempcrete

100% Recyclable
-Thermal mass
-Soundproofing, insulation, and strength properties are superior to concrete.
-Non-toxic, fireproof, and mold-resistant.

3. Cork

100% Recyclable
-Impermeable, fireproof, elastic and fire resistant material.
-Cork expands and contracts with heat, making it ideal for radiant surfaces.
-Insulator of heat, cold, and sound.



5 Economy



This project supports the local economy by providing resources to the community.

- Locally sourced wood to contribute to Oregon's timber industry.
- The building program also supports other local industries, including agriculture and vineyards and construction.
- The limited palette of materials is used to lower building costs and to ensure occupant health.
- Maximizing daylight and natural ventilation will ensure major savings on energy.
- The renewable water system will also contribute to lower operating costs.



7 Wellness



This building is designed to enhance the physical and psychological well-being of users.

- The building maximizes the use of windows and has an atrium to allow abundant daylight in the spaces.
- There are operable windows and indoor shades to allow occupants to have control over their environment.
- The building is naturally ventilated and purifies the air with the use of plants.
- Hempcrete is used as a thermal mass along with a radiant heating system to allow maximum thermal comfort.
- The green roof is a main feature in absorbing noise.
- The building has accessible stairs, a garden that promotes nutritious food.

100% Building receives ambient light
53% Receives direct daylight



1 Integration

99.2% Annual comfort hours

[Calculated with Climate Consultant passive design strategies]

- Cohabit's program incorporates the three things humans need to feel fulfilled: a place to live, a place to work, and a place to socialize.
- Cohabit is also a living learning center for community environmental education.
- The program encourages and supports shared community knowledge and local businesses.
- This program will educate the community about net-zero strategies including, but not limited to, water conservation and reuse strategies, growing local food and composting, daylighting and its effects on health and productivity, and about the Oregon timber industry and the importance of building with local materials.
- Cohabit is welcoming and inclusive for all and focuses on social justice, and provides a solution to affordable housing.
- The mission is to engage the community to establish stewardship in the downtown area of Eugene.
- The building balances nature to structure to demonstrate how humanity can coexist with our surrounding natural environment and community. The building has a positive impact on the natural ecosystem as well as on the urban space.

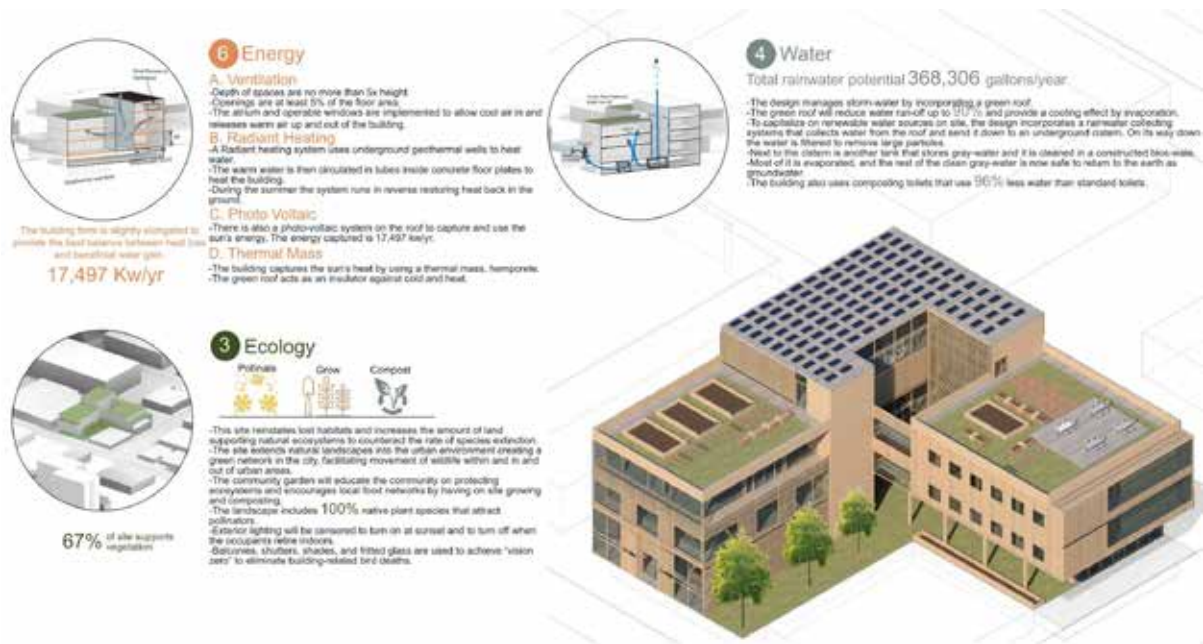


- A Sun shading for windows
- B High thermal mass
- C Natural ventilation cooling
- D Passive solar direct gain
- E Radiant heating

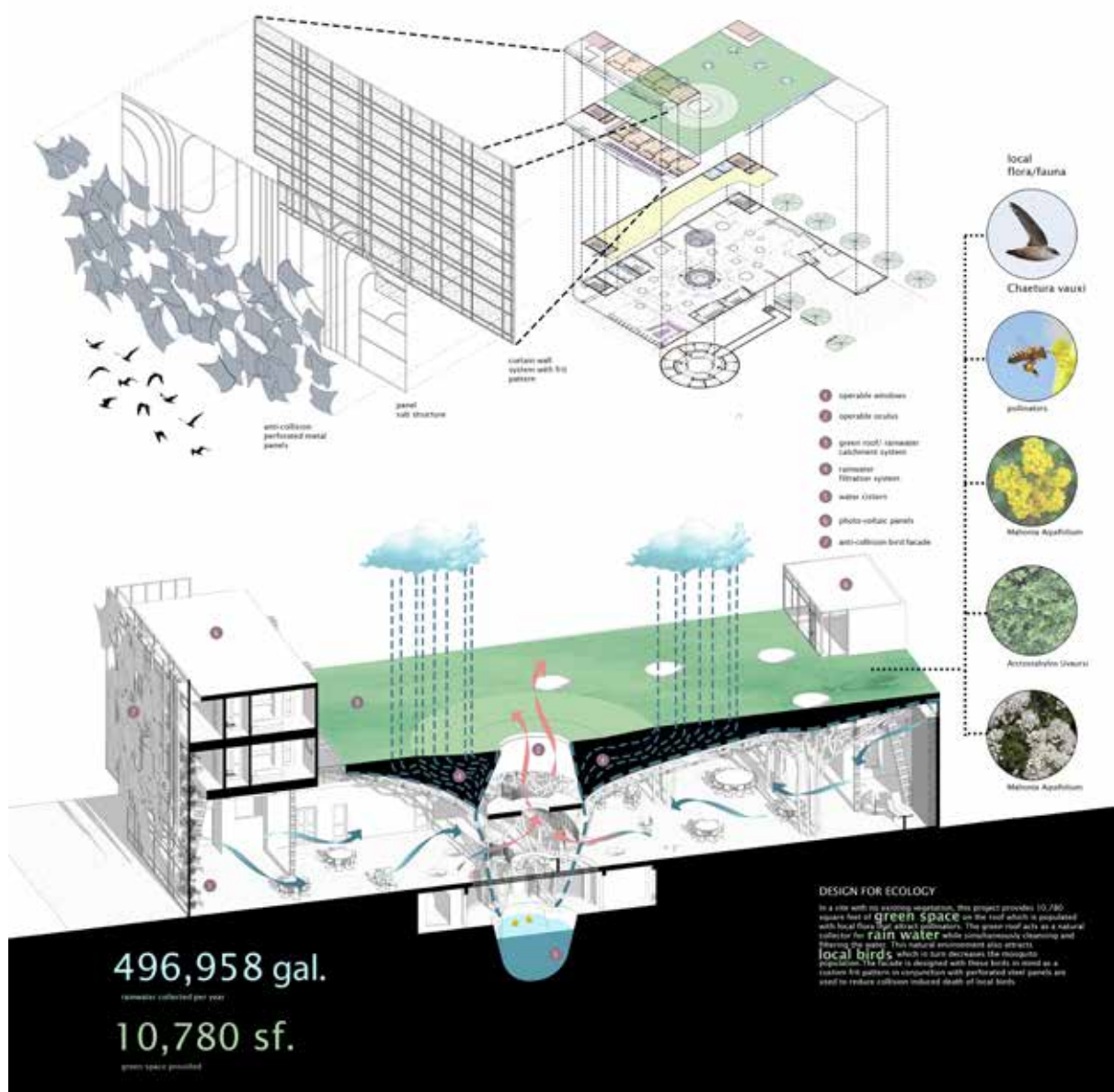


Vayle Khalaf

STUDENT WORK

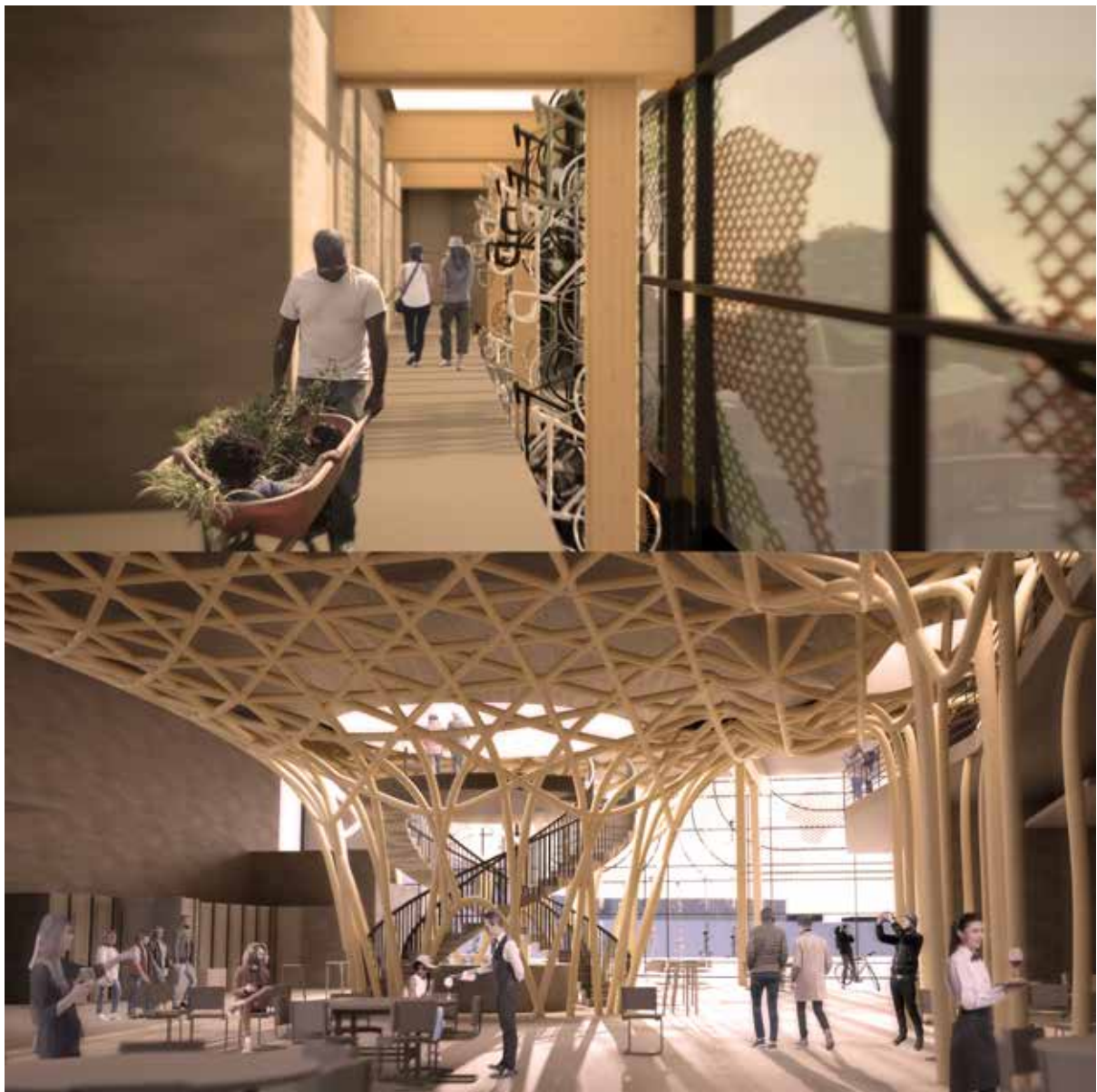


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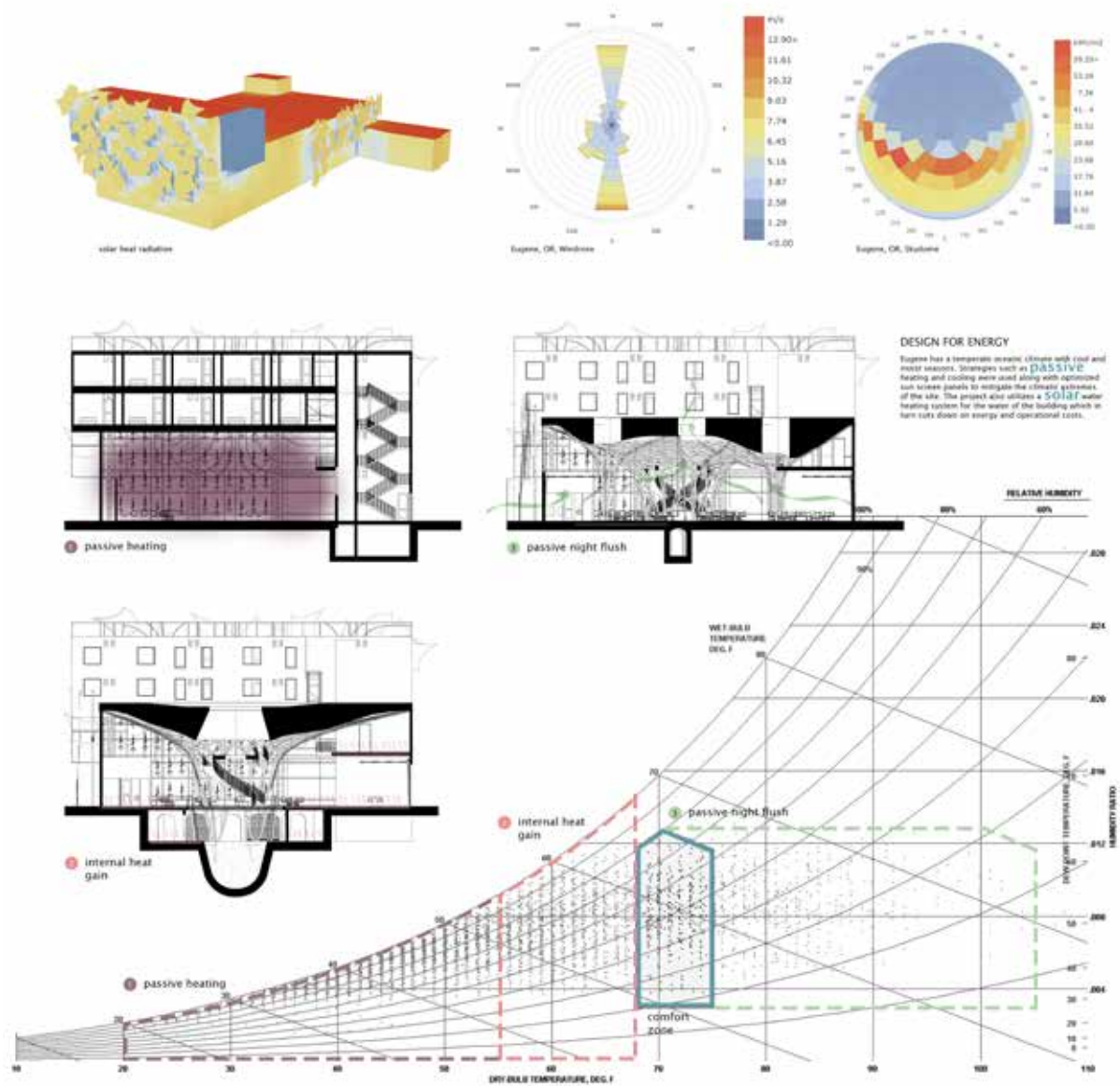
Will Ogburn

STUDENT WORK



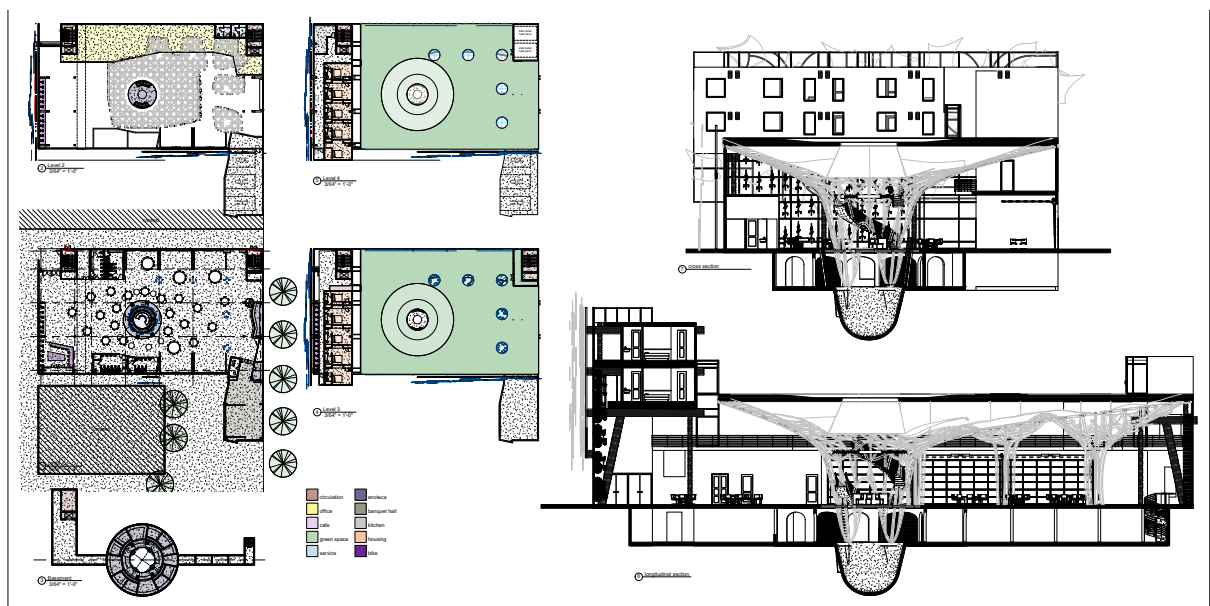
Will Ogburn

STUDENT WORK



Will Ogburn

STUDENT WORK



Will Ogburn

05.

REFERENCES

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PAGE 15 -<https://transittomorrow.org/> transit

PAGE 10 AND 20 - Google Eath Images